

Legacy Contract No. 12-5SDP5127  
Peoplesoft Contract No.5033

THE STATE OF TEXAS §

COUNTY OF TRAVIS §

**CONTRACT FOR ENGINEERING SERVICES**  
**Cost Plus Fixed Fee,**  
**Unit Cost, Lump Sum, or Specified Rate**  
**Specific Deliverable with Work Authorizations**

**THIS CONTRACT FOR ENGINEERING SERVICES** is made by and between the State of Texas acting by and through the Texas Department of Transportation, 125 E. 11th St., Austin, Texas 78701, hereinafter called "State," and Brown & Gay Engineers, Inc., having its principal business address at 10777 Westheimer, Suite 400, Houston, Texas 77042, hereinafter called "Engineer," for the purpose of contracting for engineering services.

**WITNESSETH**

**WHEREAS**, Government Code, Chapter 2254, Subchapter A, "Professional Services Procurement Act," provides for the procurement of engineering services; and

**WHEREAS**, 43 Texas Administrative Code §9.30 et seq. establishes the Texas Department of Transportation's policies and procedures for contracting for engineering services; and,

**WHEREAS**, the State desires to contract for engineering services generally described as the **providing engineering services required for the preparation of plans, specifications and estimates (PS&E) and related documents, for SH 36. These services include preparing roadway design, hydrologic and hydraulic design, traffic signal design, survey, geotechnical data collection, and if requested, provide design support and testify as the engineer of record at Right-of-Way hearings, and construction phase services necessary to support the design process for SH 36.**  
and,

**WHEREAS**, the State has selected the Engineer to provide the needed services and the Engineer has agreed to provide the services subject to the terms and conditions hereinafter set forth.

**NOW, THEREFORE**, the State and the Engineer, in consideration of the mutual covenants and agreements herein contained, do hereby mutually agree as follows.

**AGREEMENT**

**ARTICLE 1. SCOPE OF SERVICES.** The State and the Engineer will furnish items and perform those services for fulfillment of the contract as identified in Attachment B, Services to be Provided by the State and Attachment C, Services to be Provided by the Engineer. All services provided by the Engineer will conform to standard engineering practices and applicable rules and regulations of the Texas Engineering Practices Act and the rules of the Texas Board of Professional Engineers.

**ARTICLE 2. CONTRACT PERIOD.** This contract becomes effective when fully executed by all parties hereto and it shall terminate at the close of business on **November 30, 2019** unless the contract period is: (1) modified by written supplemental agreement prior to the date of termination as set forth in Attachment A, General Provisions, Article 6, Supplemental Agreements; (2) extended due to a work suspension as provided for in Attachment A, Article 3, Paragraph C; or (3) otherwise terminated in accordance with Attachment A, General Provisions, Article 15, Termination. Any work performed or cost incurred before or after the contract period shall be ineligible for reimbursement.

**ARTICLE 3. COMPENSATION.**

**A. Maximum Amount Payable.** The maximum amount payable under this contract without modification is

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shown in Attachment E, Fee Schedule. Payment under this contract beyond the end of the current fiscal biennium is subject to availability of appropriated funds. If funds are not appropriated, this contract shall be terminated immediately with no liability to either party.

**B. Basis of Payment.** The basis of payment is identified in Attachment E, Fee Schedule. Reimbursement of costs incurred under a work authorization shall be in accordance with Attachment E, Fee Schedule.

**C. Reimbursement of Eligible Costs.** To be eligible for reimbursement, the Engineer's costs must (1) be incurred in accordance with the terms of a valid work authorization; (2) be in accordance with Attachment E, Fee Schedule; and (3) comply with cost principles set forth at 48 CFR Part 31, Federal Acquisition Regulation (FAR 31). Satisfactory progress of work shall be maintained as a condition of payment.

**D. Engineer Payment of Subproviders.** No later than ten (10) days after receiving payment from the State, the Engineer shall pay all subproviders for work performed under a subcontract authorized hereunder. The State may withhold all payments that have or may become due if the Engineer fails to comply with the ten-day payment requirement. The State may also suspend the work under this contract or any work authorization until subproviders are paid. This requirement also applies to all lower tier subproviders, and this provision must be incorporated into all subcontracts.

#### **ARTICLE 4. PAYMENT REQUIREMENTS**

**A. Monthly Billing Statements.** The Engineer shall request reimbursement of costs incurred by submitting the original and one copy of an itemized billing statement in a form acceptable to the State. The Engineer is authorized to submit requests for reimbursement no more frequently than monthly and no later than ninety (90) days after costs are incurred.

**B. Billing Statement.** The billing statement shall show the work authorization number for each work authorization included in the billing, the total amount earned to the date of submission, and the amount due and payable as of the date of the current billing statement for each work authorization. The billing statement shall indicate if the work has been completed or if the billing is for partial completion of the work. The fixed fee will be paid in proportion to the percentage of work completed per work authorization.

**C. Overhead Rates.** The Engineer shall use the provisional overhead rate indicated in Attachment E. If a periodic escalation of the provisional overhead rate is specified in Attachment E, the effective date of the revised provisional overhead rate must be included. For lump sum contracts, the overhead rate remains unchanged for the entire contract period.

**D. Thirty Day Payments.** Upon receipt of a billing statement that complies with all invoice requirements set forth in this Article, the State shall make a good faith effort to pay the amount which is due and payable within thirty (30) days.

**E. Withholding Payments.** The State reserves the right to withhold payment of the Engineer's billing statement in the event of any of the following: (1) If a dispute over the work or costs thereof is not resolved within a thirty day period; (2) pending verification of satisfactory work performed; (3) the Engineer becomes a delinquent obligor as set forth in Section 231.006 of the Family Code; (4) required reports are not received; or (5) the State Comptroller of Public Accounts will not issue a warrant to the Engineer. In the event that payment is withheld, the State shall notify the Engineer and give a remedy that would allow the State to release the payment.

#### **F. Required Reports.**

(1) As required in Attachment H, Disadvantaged Business Enterprise or Historically Underutilized Business Program Requirements, the Engineer shall submit Progress Assessment Reports to report actual payments made to Disadvantaged Business Enterprises or Historically Underutilized Businesses. One copy shall be submitted with each billing statement and one copy shall be submitted to the address included in Attachment H, Disadvantaged Business Enterprise or Historically Underutilized Business Program Requirements.

(2) Prior to contract closeout, the Engineer shall submit a Final Report (Exhibit H-4) to the address set forth in Attachment H.

(3) The Engineer shall submit a separate report with each billing statement showing the percent completion of the work accomplished during the billing period and the percent completion to date, and any additional written report requested by the State to document the progress of the work.

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**G. Subproviders and Suppliers List.** Pursuant to requirements of 43 Texas Administrative Code §9.50 et seq., the Engineer must provide the State a list (Exhibit H-5/DBE or Exhibit H-6/HUB) of all Subproviders and suppliers that submitted quotes or proposals for subcontracts. This list shall include subproviders and suppliers names, addresses, telephone numbers, and type of work desired.

**H. Debt to the State.** If the State Comptroller of Public Accounts is prohibited from issuing a warrant or initiating an electronic funds transfer to the Engineer because of a debt owed to the State, the State shall apply all payment due the Engineer to the debt or delinquent tax until the debt or delinquent tax is paid in full.

**I. Audit.** The state auditor may conduct an audit or investigation of any entity receiving funds from the state directly under the contract or indirectly through a subcontract under the contract. Acceptance of funds directly under the contract or indirectly through a subcontract under this contract acts as acceptance of the authority of the state auditor, under the direction of the legislative audit committee, to conduct an audit or investigation in connection with those funds. An entity that is the subject of an audit or investigation must provide the state auditor with access to any information the state auditor considers relevant to the investigation or audit.

**ARTICLE 5. WORK AUTHORIZATIONS.** The State will issue work authorizations using the form included in Attachment D (Work Authorizations and Supplemental Work Authorizations) to authorize all work under this contract. The Engineer must sign and return a work authorization within seven (7) working days after receipt. Refusal to accept a work authorization may be grounds for termination of the contract. The State shall not be responsible for actions by the Engineer or any costs incurred by the Engineer relating to work not directly associated with or prior to the execution of a work authorization. Terms and conditions governing the use of work authorizations are set forth in Attachment A, General Provisions, Article 1.

**ARTICLE 6. SIGNATORY WARRANTY.** The undersigned signatory for the Engineer hereby represents and warrants that he or she is an officer of the organization for which he or she has executed this contract and that he or she has full and complete authority to enter into this contract on behalf of the firm. These representations and warranties are made for the purpose of inducing the State to enter into this contract.

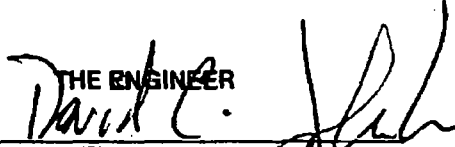
**ARTICLE 7.** All notices to either party by the other required under this agreement shall be delivered personally or sent by certified or U.S. mail, postage prepaid, addressed to such party at the following addresses:

Engineer:	State:
Brown & Gay Engineers, Inc.  10777 Westheimer, Suite 400  Houston, Texas, 77042  281-558-8700	Director, Professional Engineering Procurement Services Texas Department of Transportation 125 E. 11 <sup>th</sup> Street Austin, Texas 78701

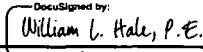
All notices shall be deemed given on the date so delivered or so deposited in the mail, unless otherwise provided herein. Either party may change the above address by sending written notice of the change to the other party. Either party may request in writing that such notices shall be delivered personally or by certified U.S. mail and such request shall be honored and carried out by the other party.

**ARTICLE 8. INCORPORATION OF PROVISIONS.** Attachments A through H are attached hereto and incorporated into this contract as if fully set forth herein.

**IN WITNESS WHEREOF,** the State and the Engineer have executed this contract in duplicate.

**THE ENGINEER**  
  
(Signature)  
**David C. Johnston**  
(Printed Name)  
**Senior Vice President**  
(Title)  
**1.17.16**  
(Date)

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**THE STATE OF TEXAS**

DocuSigned by:  
  
(Signature)  
**William L. Hale, P.E.**  
(Printed Name)  
**Chief Engineer**  
(Title)  
**1/29/2016**  
(Date)



**Attachments and Exhibits to Contract for Engineering Services  
Incorporated into the Contract by Reference**

<b>Attachments</b>	<b>Title</b>
A	General Provisions
B	Services to Be Provided by the State
C	Services to Be Provided by the Engineer
D	Work Authorization and Supplemental Work Authorization
E	Fee Schedule
F	Work Schedule
G	Computer Graphics Files for Document and Information Exchange, if applicable
H-FG	Disadvantaged Business Enterprise (DBE) for Federal Funded Professional or Technical Services Contracts – See Attachment H Instructions <b>N/A</b>
H – FN	Disadvantaged Business Enterprise (DBE) for Race-Neutral Professional or Technical Services Contracts – See Attachment H Instructions <b>N/A</b>
H – SG	Historically Underutilized Business (HUB) Requirements for State Funded Professional or Technical Services Contracts – State of Texas HUB. Subcontracting plan required – See Attachment H Instructions
H – SN	Historically Underutilized Business (HUB) Requirements for State Funded Professional or Technical Services Contracts – No State of Texas HUB <b>N/A</b>
<b>Exhibits</b>	<b>Title</b>
H – 1	Subprovider Monitoring System Commitment Worksheet
H – 2	Subprovider Monitoring System Commitment Agreement
H – 3	Monthly Progress Assessment Report <b>N/A</b>
H - 4	Subprovider Monitoring System Final Report
H - 5	Federal Subproviders and Supplier Information <b>N/A</b>
H - 6	HUB Subcontracting Plan (HSP) Prime Contractor Progress Assessment Report

**ATTACHMENT A**

**GENERAL PROVISIONS**

**INDEX TO PROVISIONS**

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3	Suspension of Work
4	Additional Work
5	Changes in Work
6	Supplemental Agreements
7	Ownership of Data
8	Public Information
9	Personnel, Equipment and Material
10	License for TxDOT Logo Use
11	Subcontracting
12	Inspection of Work
13	Submission of Reports
14	Violation of Contract Terms
15	Termination
16	Compliance with Laws
17	Indemnification
18	Engineer's Responsibility
19	Non-collusion
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21	Gratuities
22	DBE/HUB Requirements
23	Maintenance, Retention and Audit of Records
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30	Successors and Assigns
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## **ATTACHMENT A**

### **GENERAL PROVISIONS**

#### **ARTICLE 1. WORK AUTHORIZATIONS**

**A. Use.** The Engineer shall not begin any work until the State and the Engineer have signed a work authorization. Costs incurred by the Engineer before a work authorization is fully executed or after the completion date specified in the work authorization are not eligible for reimbursement. All work must be completed on or before the completion date specified in the work authorization, and no work authorization completion date shall extend beyond the contract period set forth in Article 2 of the contract (Contract Period).

**B. Contents.** Each work authorization will include: (1) types of services to be performed; (2) a period of performance with a beginning and ending date; (3) a full description of the work to be performed; (4) a work schedule with milestones; (5) a cost not to exceed amount, (6) the basis of payment whether cost plus fixed fee, unit cost, lump sum, or specified rate; and (7) a work authorization budget calculated using fees set forth in Attachment E, Fee Schedule. The Engineer is not to include additional contract terms and conditions in the work authorization. In the event of any conflicting terms and conditions between the work authorization and the contract, the terms and conditions of the contract shall prevail and govern the work and costs incurred.

**C. Work Authorization Budget.** A work authorization budget shall set forth in detail (1) the computation of the estimated cost of the work as described in the work authorization, (2) the estimated time (hours/days) required to complete the work at the hourly rates established in Attachment E, Fee Schedule; (3) a work plan that includes a list of the work to be performed, (4) a stated maximum number of calendar days to complete the work, and (5) a cost-not-to-exceed-amount or unit or lump sum cost and the total cost or price of the work authorization. The State will not pay items of cost that are not included in or rates that exceed those approved in Attachment E.

**D. No Guaranteed Work.** Work authorizations are issued at the discretion of the State. While it is the State's intent to issue work authorizations hereunder, the Engineer shall have no cause of action conditioned upon the lack or number of work authorizations issued.

**E. Incorporation into Contract.** Each work authorization shall be signed by both parties and become a part of the contract. No work authorization will waive the State's or the Engineer's responsibilities and obligations established in this contract. The Engineer shall promptly notify the State of any event that will affect completion of the work authorization.

**F. Supplemental Work Authorizations.** Before additional work may be performed or additional costs incurred, a change in a work authorization shall be enacted by a written supplemental work authorization in the form identified and attached hereto as Attachment D. Both parties must execute a supplemental work authorization within the period of performance specified in the work authorization. The State shall not be responsible for actions by the Engineer or any costs incurred by the Engineer relating to additional work not directly associated with the performance or prior to the execution of the work authorization. The Engineer shall allow adequate time for review and approval of the supplemental work authorization by the State prior to expiration of the work authorization. Any supplemental work authorization must be executed by both parties within the time period established in Article 2 of the contract, (Contract Period). Under no circumstances will a work authorization be allowed to extend beyond the contract's expiration date or will the total amount of funds exceed the maximum amount payable set forth in Article 3A of the contract (Compensation).

**F-1. More Time Needed.** If the Engineer determines or reasonably anticipates that the work authorized in a work authorization cannot be completed before the specified completion date, the Engineer shall promptly notify the State. The State may, at its sole discretion, extend the work authorization period by execution of supplemental authorization, using the form attached hereto as Attachment D.

**F-2. Changes in Scope.** Changes that would modify the scope of the work authorized in a work authorization must be enacted by a written supplemental work authorization. The Engineer must allow adequate time for the State to review and approve any request for a time extension prior to expiration of

the work authorization. If the change in scope affects the amount payable under the work authorization, the Engineer shall prepare a revised work authorization budget for the State's approval.

**G. New Work Authorization.** If the Engineer does not complete the services authorized in a work authorization before the specified completion date and has not requested a supplemental work authorization, the work authorization shall terminate on the completion date. At the sole discretion of the State, it may issue a new work authorization to the Engineer for the incomplete work using the unexpended balance of the preceding work authorization for the project. If approved by the State, the Engineer may calculate any additional cost for the incomplete work using the rates set forth in the preceding work authorization and in accordance with Attachment E, Fee Schedule.

**H. Emergency Work Authorizations.** The State, at its sole discretion, may accept the Engineer's signature on a faxed copy of the work authorization as satisfying the requirements for executing the work authorization, provided that the signed original is received by the State within five business days from the date on the faxed copy.

**I. Deliverables.** Upon satisfactory completion of the work authorization, the Engineer shall submit the deliverables as specified in the executed work authorization to the State for review and acceptance.

## **ARTICLE 2. PROGRESS**

**A. Progress meetings.** The Engineer shall from time to time during the progress of the work confer with the State. The Engineer shall prepare and present such information as may be pertinent and necessary or as may be requested by the State in order to evaluate features of the work.

**B. Conferences.** At the request of the State or the Engineer, conferences shall be provided at the Engineer's office, the office of the State, or at other locations designated by the State. These conferences shall also include evaluation of the Engineer's services and work when requested by the State.

**C. Inspections.** If federal funds are used to reimburse costs incurred under this contract, the work and all reimbursements will be subject to periodic review by the U. S. Department of Transportation.

**D. Reports.** The Engineer shall promptly advise the State in writing of events that have a significant impact upon the progress of a work authorization, including:

1. problems, delays, adverse conditions that will materially affect the ability to meet the time schedules and goals, or preclude the attainment of project work units by established time periods; this disclosure will be accompanied by statement of the action taken or contemplated, and any State or federal assistance needed to resolve the situation; and
2. favorable developments or events which enable meeting the work schedule goals sooner than anticipated.

**E. Corrective Action.** Should the State determine that the progress of work does not satisfy the milestone schedule set forth in a work authorization, the State shall review the work schedule with the Engineer to determine the nature of corrective action needed.

## **ARTICLE 3. SUSPENSION OF WORK AUTHORIZATION**

**A. Notice.** Should the State desire to suspend a work authorization but not terminate the contract, the State may verbally notify the Engineer followed by written confirmation, giving (30) thirty days notice. Both parties may waive the thirty-day notice in writing.

**B. Reinstatement.** A work authorization may be reinstated and resumed in full force and effect within sixty (60) business days of receipt of written notice from the State to resume the work. Both parties may waive the sixty-day notice in writing.

**C. Contract Period Not Affected.** If the State suspends a work authorization, the contract period as determined in Article 2 of the contract (Contract Period) is not affected and the contract and the work authorization will terminate on the date specified unless the contract or work authorization is amended to authorize additional time.

**D. Limitation of Liability.** The State shall have no liability for work performed or costs incurred prior to the date authorized by the State to begin work, during periods when work is suspended, or after the completion date of the contract or work authorization.

#### **ARTICLE 4. ADDITIONAL WORK**

**A. Notice.** If the Engineer is of the opinion that any assigned work is beyond the scope of this contract and constitutes additional work, it shall promptly notify the State in writing, presenting the facts of the work authorization and showing how the work authorization constitutes additional work.

**B. Supplemental Agreement.** If the State finds that the work does constitute additional work, the State shall so advise the Engineer and a written supplemental agreement will be executed as provided in General Provisions, Article 6, Supplemental Agreements.

**C. Limitation of Liability.** The State shall not be responsible for actions by the Engineer or any costs incurred by the Engineer relating to additional work not directly associated with or prior to the execution of a supplemental agreement.

#### **ARTICLE 5. CHANGES IN WORK**

**A. Work Previously Submitted as Satisfactory.** If the Engineer has submitted work in accordance with the terms of this contract but the State requests changes to the completed work or parts thereof which involve changes to the original scope of services or character of work under the contract, the Engineer shall make such revisions as requested and as directed by the State. This will be considered as additional work and paid for as specified under Article 4, Additional Work.

**B. Work Does Not Comply with Contract.** If the Engineer submits work that does not comply with the terms of this contract, the State shall instruct the Engineer to make such revision as is necessary to bring the work into compliance with the contract. No additional compensation shall be paid for this work.

**C. Errors/Omissions.** The Engineer shall make revisions to the work authorized in this contract which are necessary to correct errors or omissions appearing therein, when required to do so by the State. No additional compensation shall be paid for this work.

#### **ARTICLE 6. SUPPLEMENTAL AGREEMENTS**

**A. Need.** The terms of this contract may be modified if the State determines that there has been a significant increase or decrease in the duration, scope, cost, complexity or character of the services to be performed. A supplemental agreement will be executed to authorize such significant increases or decreases. Significant is defined to mean a cost increase of any amount and a cost decrease of twenty percent (20%) or more of the original estimated project cost.

**B. Compensation.** Additional compensation, if appropriate, shall be calculated as set forth in Article 3 of the contract (Compensation). Significant changes affecting the cost or maximum amount payable shall be defined to include but not be limited to new work not previously authorized or previously authorized services that will not be performed. The parties may reevaluate and renegotiate costs at this time.

**C. When to Execute.** Both parties must execute a supplemental agreement within the contract period specified in Article 2 of the contract (Contract Period).

#### **ARTICLE 7. OWNERSHIP OF DATA**

**A. Work for Hire.** All services provided under this contract are considered work for hire and as such all data, basic sketches, charts, calculations, plans, specifications, and other documents created or collected under the terms of this contract are the property of the State.

**B. Disposition of Documents.** All documents prepared by the Engineer and all documents furnished to the Engineer by the State shall be delivered to the State upon request by the State. The Engineer, at its own expense, may retain copies of such documents or any other data which it has furnished the State under this contract, but further use of the data is subject to permission by the State.

**C. Release of Design Plan.** The Engineer (1) will not release any roadway design plan created or collected under this contract except to its subproviders as necessary to complete the contract; (2) shall include a provision in all subcontracts which acknowledges the State's ownership of the design plan and prohibits its use for any use other than the project identified in this contract; and (3) is responsible for any improper use of the design plan by its employees, officers, or subproviders, including costs, damages, or other liability resulting from improper use. Neither the Engineer nor any subprovider may charge a fee for the portion of the design plan created by the State.

#### **ARTICLE 8. PUBLIC INFORMATION AND CONFIDENTIALITY**

**A. Public Information.** The State will comply with Government Code, Chapter 552, the Public Information Act, and 43 Texas Administrative Code §3.10 et seq. in the release of information produced under this contract.

**B. Confidentiality.** The Engineer shall not disclose information obtained from the State under this contract without the express written consent of the State.

**C. Access to Information.** The Engineer is required to make any information created or exchanged with the state pursuant to this contract, and not otherwise excepted from disclosure under the Texas Public Information Act, available in a format that is accessible by the public at no additional charge to the state.

#### **ARTICLE 9. PERSONNEL, EQUIPMENT AND MATERIAL**

**A. Engineer Resources.** The Engineer shall furnish and maintain quarters for the performance of all services, in addition to providing adequate and sufficient personnel and equipment to perform the services required under the contract. The Engineer certifies that it presently has adequate qualified personnel in its employment for performance of the services required under this contract, or it will be able to obtain such personnel from sources other than the State.

**B. Removal of Contractor Employee.** All employees of the Engineer assigned to this contract shall have such knowledge and experience as will enable them to perform the duties assigned to them. The State may instruct the Engineer to remove any employee from association with work authorized in this contract if, in the sole opinion of the State, the work of that employee does not comply with the terms of this contract or if the conduct of that employee becomes detrimental to the work.

**C. Replacement of Key Personnel.** The Engineer must notify the State in writing as soon as possible, but no later than three business days after a project manager or other key personnel is removed from association with this contract, giving the reason for removal.

**D. State Approval of Replacement Personnel.** The Engineer may not replace the project manager or key personnel without prior consent of the State. The State must be satisfied that the new project manager or other key personnel is qualified to provide the authorized services. If the State determines that the new project manager or key personnel is not acceptable, the Engineer may not use that person in that capacity and shall replace him or her with one satisfactory to the State within forty-five (45) days.

**E. Ownership of Acquired Property.** Except to the extent that a specific provision of this contract states to the contrary, the State shall own all intellectual property acquired or developed under this contract and all equipment purchased by the Engineer or its subcontractors under this contract. All intellectual property and equipment owned by the State shall be delivered to the State when the contract terminates, or when it is no longer needed for work performed under this contract, whichever occurs first.

#### **ARTICLE 10. LICENSE FOR TxDOT LOGO USE**

**A. Grant of License; Limitations.** The Engineer is granted a limited revocable non-exclusive license to use the registered TxDOT trademark logo (TxDOT Flying "T") on any deliverables prepared under this contract that are the property of the State. The Engineer may not make any use of the registered TxDOT trademark logo on any other materials or documents unless it first submits that request in writing to the State and receives approval for the proposed use. The Engineer agrees that it shall not alter, modify, dilute, or otherwise misuse the registered TxDOT trademark logo or bring it into disrepute.

**B. Notice of Registration Required:** The Engineer's use of the Flying 'T' under this article shall be followed by the capital letter R enclosed within a circle (®) that gives notice that the Flying 'T' is registered in the United States Patent and Trademark Office (USPTO).

**C. No Assignment or Sublicense.** The Engineer may not assign or sublicense the rights granted by this article without the prior written consent of the State.

**D. Term of License.** The license granted to the Engineer by this article shall terminate at the end of the term specified in Article 2 of this contract.

#### **ARTICLE 11. SUBCONTRACTING**

**A. Prior Approval.** The Engineer shall not assign, subcontract or transfer any portion of professional services related to the work under this contract without prior written approval from the State.

**B. DBE/HUB Compliance.** The Engineer's subcontracting program shall comply with the requirements of Attachment H of the contract (DBE/HUB Requirements).

**C. Required Provisions.** All subcontracts for professional services shall include the provisions included in Attachment A, General Provisions, and any provisions required by law. The Engineer is authorized to pay subproviders in accordance with the terms of the subcontract, and the basis of payment may differ from the basis of payment by the State to the Engineer.

**D. Prior Review.** Subcontracts for professional services in excess of \$25,000 may be reviewed by the State prior to performance of work thereunder.

**E. Engineer Responsibilities.** No subcontract relieves the Engineer of any responsibilities under this contract.

#### **ARTICLE 12. INSPECTION OF WORK**

**A. Review Rights.** The State and the U. S. Department of Transportation, when federal funds are involved, and any of their authorized representatives shall have the right at all reasonable times to review or otherwise evaluate the work performed hereunder and the premises in which it is being performed.

**B. Reasonable Access.** If any review or evaluation is made on the premises of the Engineer or a subprovider, the Engineer shall provide and require its subproviders to provide all reasonable facilities and assistance for the safety and convenience of the state or federal representatives in the performance of their duties.

#### **ARTICLE 13. SUBMISSION OF REPORTS**

All applicable study reports shall be submitted in preliminary form for approval by the State before a final report is issued. The State's comments on the Engineer's preliminary report must be addressed in the final report.

#### **ARTICLE 14. VIOLATION OF CONTRACT TERMS**

**A. Increased Costs.** Violation of contract terms, breach of contract, or default by the Engineer shall be grounds for termination of the contract, and any increased or additional cost incurred by the State arising from the Engineer's default, breach of contract or violation of contract terms shall be paid by the Engineer.

**B. Remedies.** This agreement shall not be considered as specifying the exclusive remedy for any default, but all remedies existing at law and in equity may be availed of by either party and shall be cumulative.

#### **ARTICLE 15. TERMINATION**

**A. Causes.** The contract may be terminated before the stated completion date by any of the following conditions.

1. By mutual agreement and consent, in writing from both parties.
2. By the State by notice in writing to the Engineer as a consequence of failure by the Engineer to perform

the services set forth herein in a satisfactory manner.

3. By either party, upon the failure of the other party to fulfill its obligations as set forth herein.
4. By the State for reasons of its own, not subject to the mutual consent of the Engineer, by giving thirty business days notice of termination in writing to the Engineer.
5. By the State, if the Engineer violates the provisions of Attachment A, General Provisions Article 21, Gratuities, or Attachment H, Disadvantaged Business Enterprise/Historically Underutilized Business Requirements.
6. By satisfactory completion of all services and obligations described herein.

**B. Measurement.** Should the State terminate this contract as herein provided, no fees other than fees due and payable at the time of termination shall thereafter be paid to the Engineer. In determining the value of the work performed by the Engineer prior to termination, the State shall be the sole judge. Compensation for work at termination will be based on a percentage of the work completed at that time. Should the State terminate this contract under paragraph (4) or (5) above, the Engineer shall not incur costs during the thirty-day notice period in excess of the amount incurred during the preceding thirty days.

**C. Value of Completed Work.** If the Engineer defaults in the performance of this contract or if the State terminates this contract for fault on the part of the Engineer, the State will give consideration to the following when calculating the value of the completed work: (1) the actual costs incurred (not to exceed the rates set forth in Attachment E, Fee Schedule) by the Engineer in performing the work to the date of default; (2) the amount of work required which was satisfactorily completed to date of default; (3) the value of the work which is usable to the State; (4) the cost to the State of employing another firm to complete the required work; (5) the time required to employ another firm to complete the work; and (6) other factors which affect the value to the State of the work performed.

**D. Calculation of Payments.** The State shall use the fee schedule set forth in Attachment E to the contract (Fee Schedule) in determining the value of the work performed up to the time of termination. In the case of partially completed engineering services, eligible costs will be calculated as set forth in Attachment E, Fee Schedule. The sum of the provisional overhead percentage rate for payroll additives and for general and administrative overhead costs during the years in which work was performed shall be used to calculate partial payments. Any portion of the fixed fee not previously paid in the partial payments shall not be included in the final payment.

**E. Excusable Delays.** Except with respect to defaults of subproviders, the Engineer shall not be in default by reason of any failure in performance of this contract in accordance with its terms (including any failure to progress in the performance of the work) if such failure arises out of causes beyond the control and without the default or negligence of the Engineer. Such causes may include, but are not restricted to, acts of God or the public enemy, acts of the Government in either its sovereign or contractual capacity, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes, and unusually severe weather.

**F. Surviving Requirements.** The termination of this contract and payment of an amount in settlement as prescribed above shall extinguish the rights, duties, and obligations of the State and the Engineer under this contract, except for those provisions that establish responsibilities that extend beyond the contract period.

**G. Payment of Additional Costs.** If termination of this contract is due to the failure of the Engineer to fulfill its contract obligations, the State may take over the project and prosecute the work to completion, and the Engineer shall be liable to the State for any additional cost to the State.

#### **ARTICLE 16. COMPLIANCE WITH LAWS**

The Engineer shall comply with all applicable federal, state and local laws, statutes, codes, ordinances, rules and regulations, and the orders and decrees of any court, or administrative bodies or tribunals in any manner affecting the performance of this contract, including, without limitation, worker's compensation laws, minimum and maximum salary and wage statutes and regulations, nondiscrimination, and licensing laws and regulations. When required, the Engineer shall furnish the State with satisfactory proof of its compliance therewith.



#### **ARTICLE 17. INDEMNIFICATION**

**A. Errors, Omissions, Negligent Acts.** The Engineer shall save harmless the State and its officers and employees from all claims and liability due to activities of itself, its agents, or employees, performed under this contract and which are caused by or result from error, omission, or negligent act of the Engineer or of any person employed by the Engineer.

**B. Attorney Fees.** The Engineer shall also save harmless the State from any and all expense, including, but not limited to, attorney fees which may be incurred by the State in litigation or otherwise resisting said claim or liabilities which may be imposed on the State as a result of such activities by the Engineer, its agents, or employees.

#### **ARTICLE 18. ENGINEER'S RESPONSIBILITY**

**A. Accuracy.** The Engineer shall be responsible for the accuracy of work and shall promptly make necessary revisions or corrections resulting from its errors, omissions, or negligent acts without compensation.

**B. Errors and Omissions.** The Engineer's Responsibility for all questions arising from design errors or omissions will be determined by the State. All decisions shall be in accordance with the State's "Consultant Errors & Omissions Correction and Collection Procedures" and Texas Government Code §2252.905. The Engineer will not be relieved of the responsibility for subsequent correction of any such errors or omissions or for clarification of any ambiguities until after the construction phase of the project has been completed.

**C. Seal.** The responsible Engineer shall sign, seal and date all appropriate engineering submissions to the State in accordance with the Texas Engineering Practice Act and the rules of the Texas Board of Professional Engineers.

**D. Resealing of Documents.** Once the work has been sealed and accepted by the State, the State, as the owner, will notify the party to this contract, in writing, of the possibility that a State engineer, as a second engineer, may find it necessary to alter, complete, correct, revise or add to the work. If necessary, the second engineer will affix his seal to any work altered, completed, corrected, revised or added. The second engineer will then become responsible for any alterations, additions or deletions to the original design including any effect or impacts of those changes on the original engineer's design.

#### **ARTICLE 19. NONCOLLUSION**

**A. Warranty.** The Engineer warrants that it has not employed or retained any company or person, other than a bona fide employee working solely for the Engineer, to solicit or secure this contract and that it has not paid or agreed to pay any company or engineer any fee, commission, percentage, brokerage fee, gifts, or any other consideration, contingent upon or resulting from the award or making of this contract.

**B. Liability.** For breach or violation of this warranty, the State shall have the right to annul this contract without liability or, in its discretion, to deduct from the contract price or compensation, or otherwise recover, the full amount of such fee, commission, percentage, brokerage fee, gift or contingent fee.

#### **ARTICLE 20. INSURANCE**

The Engineer certifies that it has insurance on file with Contract Services of the Texas Department of Transportation in the amount specified on Form 1560-CS, Certificate of Insurance, as required by the State. No other proof of insurance is acceptable to the State. The Engineer certifies that it will keep current insurance on file with that office for the duration of the contract period. If insurance lapses during the contract period, the Engineer must stop work until a new certificate of insurance is provided.

#### **ARTICLE 21. GRATUITIES**

**A. Employees Not to Benefit.** Texas Transportation Commission policy mandates that employees of the Texas Department of Transportation shall not accept any benefit, gift or favor from any person doing business with or who reasonably speaking may do business with the State under this contract. The only exceptions allowed are ordinary business lunches and items that have received the advance written approval of the Executive Director of the Texas Department of Transportation.

**B. Liability.** Any person doing business with or who reasonably speaking may do business with the State under this contract may not make any offer of benefits, gifts or favors to department employees, except as mentioned above. Failure on the part of the Engineer to adhere to this policy may result in the termination of this contract.

## **ARTICLE 22. DISADVANTAGED BUSINESS ENTERPRISE OR HISTORICALLY UNDERUTILIZED BUSINESS REQUIREMENTS**

The Engineer agrees to comply with the requirements set forth in Attachment H, Disadvantaged Business Enterprise or Historically Underutilized Business Subcontracting Plan Requirements with an assigned goal or a zero goal, as determined by the State.

## **ARTICLE 23. MAINTENANCE, RETENTION AND AUDIT OF RECORDS**

**A. Retention Period.** The Engineer shall maintain all books, documents, papers, accounting records and other evidence pertaining to costs incurred and services provided (hereinafter called the Records). The Engineer shall make the records available at its office during the contract period and for seven (7) years from the date of final payment under this contract, until completion of all audits, or until pending litigation has been completely and fully resolved, whichever occurs last.

**B. Availability.** The State or any of its duly authorized representatives, the Federal Highway Administration, the United States Department of Transportation, Office of Inspector General, and the Comptroller General shall have access to the Engineer's Records which are directly pertinent to this contract for the purpose of making audits, examinations, excerpts and transcriptions.

## **ARTICLE 24. NEPOTISM DISCLOSURE**

**A.** In this section the term "relative" means:

- (1) a person's great grandparent, grandparent, parent, aunt or uncle, sibling, niece or nephew, spouse, child, grandchild, or great grandchild, or
- (2) the grandparent, parent, sibling, child, or grandchild of the person's spouse.

**B.** A notification required by this section shall be submitted in writing to the person designated to receive official notices under this contract and by first-class mail addressed to Contract Services Office, Texas Department of Transportation, 125 East 11th Street, Austin Texas 78701. The notice shall specify the Engineer's firm name, the name of the person who submitted the notification, the contract number, the district, division, or office of TxDOT that is principally responsible for the contract, the name of the relevant Engineer employee, the expected role of the Engineer employee on the project, the name of the TxDOT employee who is a relative of the Engineer employee, the title of the TxDOT employee, the work location of the TxDOT employee, and the nature of the relationship.

**C.** By executing this contract, the Engineer is certifying that the Engineer does not have any knowledge that any of its employees or of any employees of a subcontractor who are expected to work under this contract have a relative that is employed by TxDOT unless the Engineer has notified TxDOT of each instance as required by subsection (b).

**D.** If the Engineer learns at any time that any of its employees or that any of the employees of a subcontractor who are performing work under this contract have a relative who is employed by TxDOT, the Engineer shall notify TxDOT under subsection (b) of each instance within thirty days of obtaining that knowledge.

**E.** If the Engineer violates this section, TxDOT may terminate the contract immediately for cause, may impose any sanction permitted by law, and may pursue any other remedy permitted by law.

## **ARTICLE 25. CIVIL RIGHTS COMPLIANCE**

**A. Compliance with Regulations:** The Engineer will comply with the Acts and the Regulations relative to Nondiscrimination in Federally-assisted programs of the U.S. Department of Transportation, the Federal Highway Administration, as they may be amended from time to time.

**B. Nondiscrimination:** The Engineer, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, sex, or national origin in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The Engineer will not participate directly or indirectly in the discrimination prohibited by the Acts and the Regulations, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 45 CFR Part 21.

**C. Solicitations for Subcontracts, Including Procurement of Materials and Equipment:** In all solicitations either by competitive bidding or negotiation made by the Engineer for work to be performed under a subcontract, including procurement of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the Engineer of the Engineer's obligations under this contract and the Acts and Regulations relative to Nondiscrimination on the grounds of race, color, or national origin.

**D. Information and Reports:** The Engineer shall provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto, and will permit access to its books, records, accounts, other sources of information, and facilities as may be determined by the State or the Federal Highway Administration to be pertinent to ascertain compliance with such Acts, Regulations or directives. Where any information required of the Engineer is in the exclusive possession of another who fails or refuses to furnish this information, the Engineer will so certify to the State or the Federal Highway Administration, as appropriate, and shall set forth what efforts it has made to obtain the information.

**E. Sanctions for Noncompliance:** In the event of the Engineer's noncompliance with the Nondiscrimination provisions of this contract, the State will impose such contract sanctions as it or the Federal Highway Administration may determine to be appropriate, including, but not limited to:

- a) withholding of payments to the Engineer under the contract until the Engineer complies and/or
- b) cancellation, termination, or suspension of the contract, in whole or in part.

**F. Incorporation of Provisions:** The Engineer will include the provisions of paragraphs (A) through (E) in every subcontract, including procurement of materials and leases of equipment, unless exempt by the Acts, the Regulations and directives issued pursuant thereto. The Engineer will take such action with respect to any subcontract or procurement as the State or the Federal Highway Administration may direct as a means of enforcing such provisions including sanctions for noncompliance provided, however, that in the event an Engineer becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the Engineer may request the Texas Department of Transportation to enter into such litigation to protect the interests of the State; and, in addition, the Engineer may request the United States to enter into such litigation to protect the interests of the United States.

#### **ARTICLE 26. PATENT RIGHTS**

The State and the U. S. Department of Transportation shall have the royalty free, nonexclusive and irrevocable right to use and to authorize others to use any patents developed by the Engineer under this contract.

#### **ARTICLE 27. COMPUTER GRAPHICS FILES**

The Engineer agrees to comply with Attachment G, Computer Graphics Files for Document and Information Exchange, if determined by the State to be applicable to this contract.

#### **ARTICLE 28. CHILD SUPPORT CERTIFICATION**

Under Section 231.006, Texas Family Code, the Engineer certifies that the individual or business entity named in this contract, bid, or application is not ineligible to receive the specified grant, loan, or payment and acknowledges that this contract may be terminated and payment may be withheld if this certification is inaccurate. If the above certification is shown to be false, the Engineer is liable to the state for attorney's fees, the cost necessary to complete the contract, including the cost of advertising and awarding a second contract, and any other damages provided by law or the contract. A child support obligor or business entity ineligible to receive payments because of a payment delinquency of more than thirty (30) days remains ineligible until: all arrearages have been paid; the obligor is in compliance with a written repayment agreement or court order as to any existing delinquency; or the court of continuing jurisdiction over the child support order has granted the obligor an exemption from Subsection (a) of Section 231.006, Texas Family Code, as part of a court-supervised effort to improve earnings and child support payments.

#### **ARTICLE 29. DISPUTES**

**A. Disputes Not Related to Contract Services.** The Engineer shall be responsible for the settlement of all contractual and administrative issues arising out of any procurement made by the Engineer in support of the services authorized herein.

**B. Disputes Concerning Work or Cost.** Any dispute concerning the work hereunder or additional costs, or any non-procurement issues shall be settled in accordance with 43 Texas Administrative Code §9.2.

#### **ARTICLE 30. SUCCESSORS AND ASSIGNS**

The Engineer and the State do each hereby bind themselves, their successors, executors, administrators and assigns to each other party of this agreement and to the successors, executors, administrators and assigns of such other party in respect to all covenants of this contract. The Engineer shall not assign, subcontract or transfer its interest in this contract without the prior written consent of the State.

#### **ARTICLE 31. SEVERABILITY**

In the event any one or more of the provisions contained in this contract shall for any reason, be held to be invalid, illegal, or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect any other provision thereof and this contract shall be construed as if such invalid, illegal, or unenforceable provision had never been contained herein.

#### **ARTICLE 32. PRIOR CONTRACTS SUPERSEDED**

This contract constitutes the sole agreement of the parties hereto for the services authorized herein and supersedes any prior understandings or written or oral contracts between the parties respecting the subject matter defined herein.

#### **ARTICLE 33. CONFLICT OF INTEREST**

##### **A. Representation by Engineer.**

The Engineer represents that its firm has no conflict of interest that would in any way interfere with its or its employees' performance of services for the department or which in any way conflicts with the interests of the department. The Engineer further certifies that this agreement is not barred because of a conflict of interest pursuant to Texas Government Code, Section 2261.252, between it and the State. Specifically, the Engineer certifies that none of the following individuals, nor any or their family members within the second degree of affinity or consanguinity, owns 1% or more interest, or has a financial interest as defined under Texas Government Code, Section 2261.252(b), in the Engineer: any member of the Texas Transportation Commission, TxDOT's Executive Director, General Counsel, Chief of Procurement and Field Support Operations, Director of Procurement, or Director of Contract Services. The firm shall exercise reasonable care and diligence to prevent any actions or conditions that could result in a conflict with the department's interests.

##### **B. Certification Status.** The Engineer certifies that it is not:

1. a person required to register as a lobbyist under Chapter 305, Government Code;
2. a public relations firm; or
3. a government consultant.

**C. Environmental Disclosure.** If the Engineer will prepare an environmental impact statement or an environmental assessment under this contract, the Engineer certifies by executing this contract that it has no financial or other interest in the outcome of the project on which the environmental impact statement or environmental assessment is prepared.

**D. Commencement of Final Design.** This contract does not obligate the State to proceed with final design for any alternative. On completion of environmental documentation, the State will consider all reasonable alternatives in a fair and objective manner. Notwithstanding anything contained elsewhere in the contract or in any work authorization, the Engineer may not proceed with final design until after all relevant environmental decision documents have been issued.

**E. Restrictions on Testing.** If the Engineer will perform commercial laboratory testing under this contract, on any project the Engineer may not perform more than one of the following types of testing:

1. verification testing;
2. quality control testing; or
3. independent assurance testing.

#### **ARTICLE 34. OFFICE OF MANAGEMENT AND BUDGET (OMB) AUDIT REQUIREMENTS**

The parties shall comply with the requirements of the Single Audit Act of 1984, P.L. 98-502, ensuring that the single audit report includes the coverage stipulated in 2 CFR 200.

#### **ARTICLE 35. DEBARMENT CERTIFICATIONS**

The parties are prohibited from making any award at any tier to any party that is debarred or suspended or otherwise excluded from or ineligible for participation in Federal Assistance Programs under Executive Order 12549, "Debarment and Suspension." By executing this agreement, the Engineer certifies that it is not currently debarred, suspended, or otherwise excluded from or ineligible for participation in Federal Assistance Programs under Executive Order 12549. The parties to this contract shall require any party to a subcontract or purchase order awarded under this contract to certify its eligibility to receive Federal funds and, when requested by the State, to furnish a copy of the certification.

#### **ARTICLE 36. E-VERIFY CERTIFICATION**

Pursuant to Executive Order RP-80, Engineer certifies and ensures that for all contracts for services, Engineer shall, to the extent permitted by law, utilize the United States Department of Homeland Security's E-Verify system during the term of this agreement to determine the eligibility of:

1. All persons employed by Engineer during the term of this agreement to perform duties within the State of Texas; and
2. All persons, including subcontractors, assigned by Engineer to perform work pursuant to this agreement.

Violation of this provision constitutes a material breach of this agreement.

#### **ARTICLE 37. RESTRICTIONS ON EMPLOYMENT OF FORMER STATE OFFICER OR EMPLOYEE**

The Engineer shall not hire a former state officer or employee of a state agency who, during the period of state service or employment, participated on behalf of the state agency in this agreement's procurement or its negotiation until after the second anniversary of the date of the officer's or employee's service or employment with the state agency ceased.

#### **ARTICLE 38. NON-DISCRIMINATION PROVISIONS**

**A. Relocation Assistance:** The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects.

##### **B. Disability:**

- a) Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. § 794 et. Seq.), as amended, prohibits discrimination on the basis of disability; and 49 CFR Part 27.
- b) Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131-12189) as implemented by the Department of Transportation regulations at 49 C.F.R. parts 37 and 38.

**C. Age:** The Age Discrimination Act of 1974, as amended, (42 U.S.C. § 6101 et. Seq.), prohibits discrimination on the basis of age.

##### **D. Race, Creed, Color, National Origin, or Sex:**

- a) The Airport and Airway Improvement Act of 1982 (49 U.S.C. § 4.71, Section 4.7123), as amended, prohibits discrimination based on race, creed, color, national origin, or sex.

- b) The Federal Aviation Administration's Nondiscrimination state (4 U.S.C. § 47123) prohibits discrimination on the basis of race, color, national origin, and sex.
- c) Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 et. seq.), prohibits discrimination on the basis of sex.
- d) Title IX of the Education Amendments of 1972, as amended, prohibits discrimination because of sex in education program or activities (20 U.S.C. 1681 et. seq.).

**E. Civil Rights Restoration Act:** The Civil Rights Restoration Act of 1987 (PL 100-209), Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs and activities" to include all of the programs or activities of the Federal-aid recipients, subrecipients and contractors, whether such programs or activities are Federally funded or not.

**F. Minority Populations:** Executive Order 12808, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which limits discrimination against minority and low-income populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations.

**G. Limited English Proficiency:** Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, the Engineer must take reasonable steps to ensure that LEP persons have meaningful access to its programs (70 Fed. Reg. at 74087 to 74100).

## **ATTACHMENT B**

### **SERVICES TO BE PROVIDED BY THE STATE**

For each negotiated Work Authorization the State will designate a Project Manager to represent the State and will provide the following information or services as listed below by Function Code (FC).

#### **FC 102 (110) – Feasibility Studies Route and Design Studies**

- Provide As-built Plans.
- Provide Preliminary Cost Estimate, Project Information and other Documentation.
- Provide available Environmental Assessment.
- Provide Map File, Topographic (Planimetric) Base File and Aerial Photography .
- Provide approved traffic data.
- Provide DCIS project information.
- Provide Value Engineering Report, if available and applicable.

#### **FC 120 (120) – Social, Economic and Environmental Studies Social, Economic and Environmental Studies and Public Involvement**

- Provide available project development documents, environmental assessments or impacts, schematics, typical sections, public involvement records, etc.
- Review and process each necessary environmental and public involvement document prior to letting of the construction contract.
- Locate suitable facilities, advertise, and conduct each required public meeting.
- Provide designated State representatives for each public meeting.
- Provide a court reporter if necessary for public meetings.
- Review the information and material developed by the Engineer to be presented at each public meeting or public hearing three weeks before any such event. The State will return review comments to the Engineer two weeks before each such meetings or hearings, if applicable.

#### **FC 130 (130) - Right-of-Way Data**

- Provide available existing right of way plans for the proposed project location.
- Provide right of way maps for the proposed project.
- Conduct all right-of-way appraisals and acquisitions, if applicable.

#### **FC 160 (150) – Roadway Design Field Surveying and Photogrammetry**

- Provide survey control points such as horizontal control points, benchmark elevations and descriptions for vertical control, and listing of horizontal alignment coordinates for baseline control only, if available.
- Provide aerial photographs (contact prints) of the proposed project area, if available.

- Furnish a Digital Terrain Model (DTM) file to generate Cross Sections and contours, if available.

**FC 160 (160) – Roadway Design  
Roadway Design Controls**

- Provide applicable Preliminary Design Concept Conference, schematic layout and Plans, Specifications and Estimate (PS&E) package checklists for use by the Engineer.
- Provide As-built plans of the existing project facilities, if available.
- Provide standard GEOPAK design cross section criteria files developed by the State.

**FC 160 (161) – Roadway Design  
Drainage**

- Provide existing hydraulic and hydrologic studies associated with the project and project area.
- Provide areas of wetlands delineation to be surveyed by the Engineer.

**FC 160 (162) – Roadway Design  
Signing, Pavement Markings and Signalization (Permanent)**

- Available traffic counts, traffic projects and accident data, if available.

**FC 160 (163) – Roadway Design  
Miscellaneous (Roadway)**

- Provide example estimates, district general notes and standards, sample specification lists and related hard copy documentation for the Engineer's use in preparing the preliminary estimate, general notes and specifications.
- Provide a maximum project cost to be used in the preparation of the preliminary design.
- Furnish tabulation of current applicable bid process, if applicable.
- Negotiate with each project utility company for relocation agreements or required relocation as applicable.

**FC 145 (164) – Managing Contracted or Donated PS&E Services  
Project Management and Administration**

- Review, approve and update Project Design Criteria.
- Prompt Review of Deliverables.
- Provide copies of preferred District Details to be used.
- Provide copies of preferred District Standards to be used.
- Prepare final General Notes and final Specification Data Sheets.

**FC 309 (309) – Design Verification/ Changes/ Alteration  
Construction Phase Services**

- Shop drawings and related submittals received from the contractor or fabricators.



- Request for applicable change order plan modifications that are based on changed conditions or a request by the State to modify the design based on field conditions or applicable updates to the State's standards and criteria.

#### **Additional Responsibilities**

- Provide design criteria for roadway, structures, drainage, and hydraulics.
- Interface with local, regional, State and Federal agencies or other entities on behalf of Engineer.
- Coordinate and notify in writing with Emergency Medical Services (EMS), school system, United State (U.S.) Mail, etc. for any detour routes and roadway closures. Upon request by the State, the Engineer shall prepare the necessary exhibits.
- Provide the Engineer with reviews in accordance with Exhibit C, "Work Schedule" of the Work Authorization and decisions to enable the Engineer to maintain the project schedule as approved by the State.
- Provide paper prints or electronic copies of design files containing, for example, a sample title sheet, plan profile sheet, plan sheet, sheet quantities and storm water pollution prevention plan (SW3P) sheet, if available and applicable.
- Provide milestone guidelines as applicable to the district the work is being performed.
- Secure all required permits and agreements.

## ATTACHMENT C

### SERVICES TO BE PROVIDED BY THE ENGINEER

The work to be performed by the Engineer shall consist of providing engineering services required for the preparation of plans, specifications and estimates (PS&E) and related documents, for SH 36 – Section 9 (CSJ 0188-02-036) from south of Needville City Limits to Fort Bend County Line. These services preparing roadway design, hydrologic and hydraulic design, traffic signal design, survey, geotechnical data collection, if requested, provide design support and testify as the engineer of record at Right-of-Way hearings, and construction phase services necessary to support the design process for SH 36 (Section 9).

### GENERAL REQUIREMENTS

**1.1. Design Criteria.** The Engineer shall prepare all work in accordance with the latest version of applicable State's procedures, specifications, manuals, guidelines, standard drawings, standard specifications or previously approved special provisions and special specifications to include: the *PS&E Preparation Manual*, *Roadway Design Manual*, *Hydraulic Design Manual*, the *Texas Manual on Uniform Traffic Control Devices* (TMUTCD), *Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges*, (Latest edition), and other State approved manuals. When design criteria are not identified in State manuals, the Engineer shall notify the State and refer to the American Association of State Highway and Transportation Officials (AASHTO), *A Policy on Geometric Design of Highways and Street*, (latest Edition). In addition, the Engineer shall follow the guidelines shown in *Developing PS&E for the Houston District* which the Engineer may download from the State's website. The Engineer shall prepare each Plan, Specification, and Estimate (PS&E) package in a form suitable for letting through the State's construction contract bidding and awarding process.

The Engineer shall identify, prepare exhibits and complete all necessary forms for each Design Exception and Waiver required within project limits prior to the 30% project completion submittal. The Engineer shall submit each exception and waiver to the State for coordination and processing of approvals. If subsequent changes require additional exceptions, the Engineer shall notify the State in writing as soon as possible after identification of each condition that may warrant a design exception or waiver.

**1.2. Right-of-Entry and Coordination.** The Engineer shall notify the State and secure permission to enter private property to perform any surveying, engineering or geotechnical activities needed off State right-of-way. In pursuance of the State's policy with the general public, the Engineer shall not commit acts which would result in damages to private property, and the Engineer shall make every effort to comply with the wishes and address the concerns of affected private property owners. The Engineer shall contact each property owner prior to any entry onto the owner's property, and shall request concurrence from the State prior to each entry.

The Engineer shall notify the State and coordinate with adjacent engineers on all controls at project interfaces. The Engineer shall document the coordination effort, and each engineer shall provide written concurrence regarding the agreed project controls and interfaces. In the event the Engineer and the other adjacent engineers are unable to agree, the Engineer and each adjacent engineer shall meet jointly with the State for resolution. The State will have authority over the Engineer's disagreements and the State's decision will be final.

The Engineer shall prepare each exhibit necessary for approval by each utility, and other governmental or regulatory agency in compliance with the applicable format and guidelines required by each entity and as approved by the State. The Engineer shall notify the State in writing prior to beginning any work on any outside agency's exhibit.

**1.3. Progress Reporting and Invoicing.** The Engineer shall invoice according to Function Code breakdowns shown in Attachment "C" of the Contract for Engineering Services and Exhibit "D" - *Fee Schedule*, of each Work Authorization. The Engineer shall submit each invoice in a format acceptable to the State.

With each invoice, the Engineer shall include a completed Projected vs. Actual Contract Invoices form. The Engineer shall submit a monthly written progress report to the State's Project Manager regardless of whether the Engineer is invoicing for that month. The Engineer's written progress report shall describe activities during the reporting period; activities planned for the following period; problems encountered and actions taken to remedy them; list of meetings attended; and overall status, including a percent complete by task.

The Engineer shall prepare both a design time schedule using the latest version of Primavera and an estimated construction contract time schedule, using the latest version of Primavera software in accordance with the State's *Administrative Circular No. 17-93*. If software is used for the design time schedule, the Engineer shall set up using Primavera P6. The schedules shall indicate tasks, subtasks, critical dates, milestones, deliverables and review requirements in a format that depicts the interdependence of the various items. The Engineer shall provide assistance to State personnel in interpreting the schedules. The Engineer shall schedule milestone submittals at 30%, 60%, 90% and final project completion phases. The Engineer shall advise the State in writing if the Engineer is not able to meet the scheduled milestone review date.

Once the project goes to letting, all electronic files shall be delivered within 30 days of written request in conformance with the latest version of the State's Document and Information Exchange (Attachment G).

Final payment of PS&E is contingent upon the State's receipt and confirmation by the State's Project Manager that the electronic files run and is formatted in accordance with Attachment G of the contract and all review comments are addressed.

The Engineer shall prepare a letter of transmittal to accompany each document submittal to the State. At a minimum, the letter of transmittal shall include the State's Control-Section-Job (CSJ) number, the highway number, County, project limits, State's contract number, and State's work authorization number.

**1.4. Traffic Control Plans.** The Engineer shall provide all planning, labor, and equipment to develop Traffic Control Plan (TCP) needed by the Engineer to perform services under each Work Authorization. The Engineer shall comply with the requirements of the most recent edition of the TMUTCD. The Engineer shall submit a copy of each TCP to the State for approval prior commencing any work on any State roadway. The Engineer shall provide all signs, flags, and safety equipment needed to execute the approved TCP. The Engineer shall notify the State in writing twenty-four (24) hours in advance of executing each TCP requiring a lane closure, and shall have received written concurrence from the State prior to beginning the lane closure. The Engineer's field crew shall possess a copy of the approved TCP on the job site at all times and shall make the TCP available to the State for inspection upon request. The Engineer shall assign charges for any required traffic control to the applicable function code.

**1.5. Coordination.** The Engineer shall coordinate issues and communications with State's internal resource areas through the State's Project Manager. The State will communicate the resolution of issues and provide the Engineer direction through the State's Project Manager.

**1.6. Level of Effort.** For each work authorization, the Engineer shall base the level of effort at each phase on the prior work developed in earlier phases without unnecessary repetition or re-study. As directed by the State, the Engineer shall provide written justification regarding whether or not additional or repeated level of effort of earlier completed work is warranted, or if additional detail will be better addressed at a later stage in the project development.

**1.7. Quality Assurance and Quality Control.** The Engineer shall provide peer review for each deliverable. For each deliverable, the Engineer shall have some evidence of their internal review and mark-up of that deliverable as preparation for submittal. A milestone submittal is not considered complete unless the required milestone documents and associated internal red-line mark-ups are submitted. The State's Project Manager may require the Engineer to submit the Engineer's internal mark-up (red-lines) or comments developed as part the Engineer's quality control step. When internal mark-ups are requested by the State in advance, the State, at its sole discretion, may reject the actual deliverable should the Engineer fail to provide the evidence of quality control. The Engineer shall clearly label each document submitted for quality assurance as an internal mark-up document.

The Engineer shall perform Quality Control/Quality Assurance on all survey procedures, field surveys, data, and products prior to delivery to the State. If, at any time, during the course of reviewing a survey submittal it becomes apparent to the State that the submittal contains errors, omissions, or inconsistencies, the State may cease its review and immediately return the submittal to the Engineer for appropriate action by the Engineer. A submittal returned to the Engineer for this reason is not a submittal for purposes of the submission schedule.

**1.8. Use of the State's Standards.** The Engineer shall identify and insert the applicable, current State's Standard Details, District Standard Details, or miscellaneous details that have been approved for use as frequently as is feasible. The Engineer shall sign, seal, and date each District Standard and miscellaneous detail selected for use is dependent upon the project's location, if the District Standard selected has not been adopted for use in a District. The Engineer shall obtain approval for use of these details during the early stages of design from the State's Project Manager. In addition, these details shall be accompanied by the appropriate general notes, special specifications, special provisions, and method of payment. The Engineer shall retain the responsibility for the appropriate selection of each Standard identified for use within their design.

**1.9. Organization of Plan Sheets.** The PS&E shall be complete and organized in accordance with Stand-Alone Manual Notice 00-1 entitled "Organization of Plan Sheets" and as identified by the latest edition of a District's "Guidelines for Milestone Submittals". The PS&E package shall be suitable for the bidding and awarding of a construction contract, and in accordance with the latest State's policies and procedures, and the District's PS&E Checklist.

**1.10. Limited Access to State's DCIS.** The Engineer shall receive limited access to the State's DCIS to update responsible engineer information, sign, seal and date, build specification list and develop Project estimate.

As shown on the table below, the Engineer shall access and update DCIS with the following function codes.

DCIS Update Screens	Required Criteria for Access	DCIS Function Code
S01-Responsible Engineer Update S03-Sealing, Signing & Dating P04-Project Estimate C03-Build Specifications	Consultant Registered Professional Engineer (PE)	CONENG
P04-Project Estimate C03-Build Specifications	Consultant does not have to be a PE	CONEST

The State will require the Engineer to sign forms 1828, Information Security Compliance Agreement; 1980, Request for External Access to the State's Information Systems, 2110; Information Resources Confidentiality Agreement, and DR-IRI Information Access Request Form. These access rights will be revoked after the project is let.

## **TASK DESCRIPTIONS AND FUNCTION CODES**

The Engineer shall categorize each task performed to correspond with the Function Codes (FC) and Task Descriptions.

### **FC 102(110) – Feasibility Studies Route and Design Studies**

**110.1. Data Collection and Field Reconnaissance.** The Engineer shall collect, review and evaluate data described below. The Engineer shall notify the State in writing whenever the Engineer finds disagreement with the information or documents:

1. Data, if available, from the State, including “as-built plans”, existing schematics, right-of-way maps, Subsurface Utility Engineering (SUE) mapping, existing cross sections, existing planimetric mapping, environmental documents, existing channel and drainage easement data, existing traffic counts, accident data, Bridge Inspection records, Project Management Information system (PMIS) data, identified endangered species, identified hazardous material sites, current unit bid price information, current special provisions, special specifications, and standard drawings.
2. Documents for existing and proposed development along proposed route from local municipalities and local ordinances related to project development.
3. Utility plans and documents from appropriate municipalities and agencies.
4. Readily available flood plain information and studies from the Federal Emergency Management Agency (FEMA), the U. S. Army Corps of Engineers (USACE), local municipalities and other governmental agencies in addition to that provided by the State.
5. The Engineer shall conduct field reconnaissance and collect data including a photographic record (to be maintained in Engineer's office) of notable existing features.
6. The Engineer shall utilize the available boring logs and other Geotechnical Investigation data and reports prepared by the State.

**110.2. Design Criteria.** The Engineer shall develop the roadway design criteria based on the controlling factors specified by the State (*i.e.* 4R, 3R, 2R, or special facilities), by use of the

funding categories, design speed, functional classification, roadway class and any other set criteria as set forth in *PS&E Preparation Manual*, *Roadway Design Manual*, *Bridge Design Manual*, *Hydraulic Design Manual*, and other deemed necessary State approved manuals. The Engineer shall obtain written concurrence from the State prior to proceeding with a design if any questions arise during the design process regarding the applicability of State's design criteria.

**110.3. Preliminary Cost Estimates.** The Engineer shall develop a preliminary cost estimate using the Average Low Bid Unit Price. The Engineer shall estimate the total project cost including preliminary engineering, final engineering, right-of-way (ROW) acquisition, construction, utility relocation, and construction Phase Services.

**110.4. Design Concept Conference.** In accordance with the State's Project Development Process Manual, the Engineer, in cooperation with the State, shall plan, attend and document a Design Concept Conference (DCC) to be held prior to the 30 percent milestone submittal. In preparation for the DCC, the Engineer shall complete a State's Design Summary Report (Design Elements Form) to serve as a checklist for the minimum required design considerations. The conference will provide for a brainstorming session in which decision makers, stakeholders and technical personnel may discuss and agree on:

1. Roadway and drainage design parameters
2. Engineering and environmental constraints
3. Project development schedule
4. Other issues as identified by the State
5. Identify any Design Exceptions and waivers
6. Preliminary Construction Cost Estimate

**110.5. Geotechnical Borings.** The Engineer shall perform a geotechnical investigation consisting of: performing soil borings and field testing, installation of piezometers, laboratory testing, engineering analyses, and preparation of a report. The Engineer shall perform coring of the existing pavement for removal items only. The investigation and analyses should consider potential construction of: embankments, storm sewers, culvert structures, and traffic signals.

Analyses should include: Determination of foundation design for installation of storm sewers, culvert structures and traffic signals, as appropriate.

1. All geotechnical work should be performed in accordance with the latest version of the TxDOT Geotechnical Manual. All testing shall be performed in accordance with the latest version of the TxDOT Manual of Test Procedures. ASTM test procedures can be used only in the absence of TxDOT procedures. All soil classification should be done in accordance with the Unified Soil Classification System.
2. Engineer shall determine the location of proposed soil borings in accordance with the latest edition of the TxDOT Geotechnical Manual. The State will review and provide comments for a boring layout submitted by the Engineer showing the general location and depths of the proposed borings. Once the Engineer receives the State's review comments, they shall perform the soil borings (field work), soil testing and prepare the boring logs in accordance with the latest edition of the TxDOT Geotechnical Manual and Houston District's procedures. The following table summarizes the proposed soil boring program for the project.

<b>Structure</b>	<b>No. of Borings</b>	<b>Depth of borings (ft)</b>	<b>Drilling Footage (ft)</b>
<i>Storm Sewers</i>	<i>6</i>	<i>20</i>	<i>120</i>
<i>Culverts</i>	<i>9</i>	<i>30</i>	<i>270</i>
<i>Traffic Signals</i>	<i>3</i>	<i>50</i>	<i>150</i>
<b>Total</b>	<b>17</b>		<b>540</b>

3. The Engineer shall provide a signed, sealed and dated geotechnical report which contains but is not limited to: soil boring locations, boring logs, laboratory test results, generalized subsurface conditions, ground water conditions, piezometer data, analyses and recommendations for storm sewers, culverts and traffic signals. The skin friction tables and design capacity curves should be presented for drilled shaft foundations.
4. It will be the responsibility of the Geotechnical Engineer to sign, seal and date the soil boring sheets to be used in the PS&E package. The preparation of soil boring sheets should be in accordance with Houston District standards.

**FC 120 (120) – Social, Economic and Environmental Studies**  
**Social, Economic and Environmental Studies and Public Involvement**

**120.1. Informal Meetings.** The Engineer shall provide technical assistance, preparation of exhibits for, and minutes of informal meetings requested by the public to discuss the pending impacts to neighborhoods and businesses due to roadway shutdowns, detours and access restrictions or as deemed necessary. It is not anticipated that the Engineer's participation will be needed for the NEPA process. However, if any assistance (exhibits, attendance, etc.) for a formal public meeting associated with schematic approval is required it shall be considered as additional work.

**120.2. Environmental Permits Issues and Commitments (EPIC) Sheets.** The Engineer shall complete the latest version of the EPIC sheets per information provided by the State. These sheets shall be signed, sealed and dated by the Engineer as indicated in signature block. The final sheets shall be submitted for the State's signature.

**120.3. Environmental Study Review.** The State shall provide final environmental study to the Engineer for review and implementation into the PS&E package. The Engineer shall consider the constructability issues as it relates to the environmental impacts.

**FC 130 (130) – Right-of-Way Data**

All standards, procedures and equipment used by the Engineer's Surveyor shall be such that the results of the survey will be in accordance with Board Rule 663.15, as promulgated by the Texas Board of Professional Land Surveyors.

The Engineer shall locate the existing ROW within the project limits from the current project control monuments and prepare a layout map for the project.

**130.1. Right-of-Way Map.** The Engineer shall review and evaluate the proposed and existing right-of-way map provided by the State to verify that all construction staging and alignment considerations have been taken into account. The Engineer shall make every effort to prevent detours and utility relocations from extending beyond the proposed right-of-way lines. The Engineer shall notify the State in writing if it is necessary to obtain additional Rights of Way

construction easements or rights-of-entry and shall provide justification for such action. The Engineer shall be responsible for identifying and delineating any temporary construction easements in areas outside the State's Right of Way. The State shall secure the necessary legal instruments.

### **130.2. Utility Adjustment Coordination**

Utility Adjustment Coordination shall include utility coordination meetings with individual utility companies, communication and coordination with utilities.

#### **1. UTILITY COORDINATION**

The Engineer's Utility Coordinator shall perform utility coordination and liaison activities with involved utility owners, their consultants, and the State to achieve timely project notifications, formal coordination meetings, conflict analysis and resolution. The Utility Coordinator shall act as the "Responsible Party" as indicated in the State's— Utility Cooperative Management Process (See the State's ROW Utility Manual, chapter 2).

- a. The Engineer's Utility Coordinator shall coordinate all activities with the State, or their designee, to facilitate the orderly progress and timely completion of the State design phase. The Engineer's Utility Coordinator shall be responsible for the following:
  - i. Work Plan. Coordinate a work plan including a list of the proposed meetings and coordination activities, and related tasks to be performed, a schedule and an estimate. The work plan must satisfy the requirements of the project and must be approved by the State prior to commencing work.
  - ii. Orientation. Prepare and present, in collaboration with State staff, instruction and orientation sessions as required by the State. The instruction shall introduce the subsurface utility engineering process, demonstrate the technology and facilitate the preparation of work orders, billings, and contract related documentation.
  - iii. Initial Project Meeting. Attend an initial meeting and an on-site inspection (when appropriate) to ensure familiarity with existing conditions, project requirements and prepare a written report of the meeting.
  - iv. External Communications. The Engineer's Utility Coordinator shall coordinate all activities with the State and its consultants or other contractors or representatives, as authorized by the State. Also, the Engineer's Utility Coordinator shall provide the State copies of diaries, correspondence and other documentation of work-related communications between the Engineer's Utility Coordinator, utility owners and other outside entities when requested by the State.
  - v. Permits and rights of entry. Obtain all necessary permits from city, county, municipality, railroad or other jurisdiction to allow the Engineer to work within existing streets, roads or private property for additional designating and/or subsurface utility locating.



- vi. Progress Meetings. The Engineer's Utility Coordinator shall implement a schedule of periodic meetings with each utility company and owner or owner's representatives for coordination purposes. Such meetings shall commence as early as possible in the design process and shall continue until completion of the project. The Engineer's Utility Coordinator shall notify the State at least two (2) business days in advance of each meeting to allow the State the opportunity to participate in the meeting. The Engineer's Utility Coordinator shall provide and produce meeting minutes of all meetings with said utility companies, owners or owners' representatives within seven (7) business days. The frequency of such meetings shall be appropriate to the matters under discussion with each utility owner.
- b. As required the Engineer's Utility Coordinator shall coordinate with the local utilities committees to present a foot print of the State's projects with represented utility companies and owners. The Engineer's Utility Coordinator shall also coordinate with any other utility committees which may include county, city, or other officials, if needed.
- c. The Engineer's Utility Coordinator shall provide to TxDOT the initial project notification letters to all affected utility companies, owners, and other concerned parties, if needed.
- d. The Engineer's Utility Coordinator shall provide the State and all affected utility companies and owners a Utility Contact List for each project with all information such as: (a) Owner's Name; (b) Contact Person; (c) Telephone Numbers; (d) Emergency Contact Number; (e) E-mail addresses; (f) as well as all pertinent information concerning their respective affected utilities and facilities, including but not limited to: size, number of poles, material, and other information which readily identifies the utilities companies' facilities.
- e. The Engineer's Utility Coordinator shall advise utility companies and owners of the general characteristics of the Project and provide an illustration of the project footprint for mark-up of the utility facility locations that occupy the project area.
- f. Houston District Utility Cooperative Process – The Engineer's Utility Coordinator shall attend coordination meetings with all utility owners and TxDOT at the 30%, 60% and 90% milestones.
- g. The Engineer shall develop and maintain a utility conflict list showing utility information, stating what the conflict is and proposed resolutions for the conflict.

**130.3. Access Management.** The Engineer shall coordinate and evaluate access management within the project limits in accordance with the latest State Access Management Manual or as directed by the State.

**130.4 Utility Layouts and Utility Crossing Plans and Profiles.** The Engineer shall develop an estimated 16 utility layout sheets double banked at 1"=100' scale. Layouts are to show topo, proposed roadway improvements, existing utilities and existing/proposed ROW. The Engineer shall prepare an estimated 4 utility crossing plan and profiles at 1"=40' scale showing the existing utilities perpendicular to the roadway.

**FC 145 (164) – Managing Contracted or Donated PS&E Services  
Project Management and Administration**

The Engineer, in association with the State's Project Manager shall be responsible for directing and coordinating all activities associated with the project to comply with State policies and procedures, and to deliver that work on time.

Project Management and Coordination. The Engineer shall coordinate all subconsultant activity to include quality of and consistency of plans and administration of the invoices and monthly progress reports. The Engineer shall coordinate with necessary local entities.

The Engineer shall:

- Prepare monthly written progress reports for each project.
- Develop and maintain a detailed project schedule to track project conformance to Exhibit C, Work Schedule, for each work authorization. The schedule submittals shall be hard copy and electronic format.
- Meet on a scheduled basis with the State to review project progress.
- Prepare, distribute, and file both written and electronic correspondence.
- Prepare and distribute meeting minutes.
- Document phone calls and conference calls as required during the project to coordinate the work for various team members.

**FC 160 (150) – Roadway Design  
Field Surveying and Photogrammetry**

The Engineer shall provide design surveys as described within each work authorization as defined below:

Design survey – The combined performance of research, field work, analysis, computation and documentation necessary to provide detailed topographic (3-dimensional) mapping of a project site. A design survey may include, but need not be limited to locating existing right-of-way, cross-sections and Digital Terrain Models (DTM), horizontal and vertical location of utilities and improvements, detailing of bridges and other structures, review of right-of-way maps, establishing control points, etc.

It shall be the responsibility of the Engineer to secure right of entry to private property for the purpose of performing any surveying and soil boring activities. It is the stated policy of the State to make every effort to maintain positive relations with the general public. In pursuance of that policy, the Engineer shall not commit acts which will result in damages to private property and the Engineer will make every effort to comply with the wishes and address the concerns of private property owners.

- 150.1. Field Surveying.** The Engineer shall verify the benchmark coordinates and establish additional horizontal and vertical control for the project. The Engineer shall provide supplemental field surveying services necessary to verify the Digital Terrain Model (DTM), produce topographic maps, establish the project baseline on the ground, locate and tie existing utilities to the project baseline, to tie the soil boring locations, and update topography.

Coordinate geometry shall be based on and tied into State plane surface coordinate system.  
The Engineer shall:

1. Establish Project Baseline: The project base line must be coincidental with, or parallel to, the stationed "Design Center Line." Base line control points shall be established using 15M(ASTM) (5/8 inch) iron rods, 36 inches long, at Point of Curvatures (P.C.'s), Point of Intersections (P.I.'s) and Point of Tangents (P.T.'s) of horizontal curves and at 1000 feet maximum intervals on tangents. Baseline control points shall be offset with set iron rods on both sides near the existing ROW lines at a measured distance. If available, coordinate to field tie to the Project baseline set by adjacent Engineers for consistency and accuracy.

2. Horizontal and Vertical Control Surveys (Project Control):

The maximum distance between control points shall not exceed 1500 feet. The coordinate location and elevation of control points or center panel points based on GPS surveys conducted by the Engineer's Surveyor shall meet standards of accuracy. Reference may be made to standards of accuracy for First Authorization surveys as described in the Federal Geodetic Control Committee publication entitled Geometric Geodetic Accuracy Standards and Specifications for Using GPS Relative Positioning Techniques.

DATUM. All coordinates shall be based on the North American datum (NAD) 83. All elevations shall be based on the North American vertical datum (NAVD) of 1988, or as approved by the State.

All traverses conducted by the Engineer's Surveyor shall be tied to the National Geodetic Survey system, either directly or indirectly as follows:

The Engineer's Surveyor shall make sufficient measurements to existing National Geodetic Survey monuments to assess the angular, horizontal and vertical closure of each traverse.

The Engineer's Surveyor shall make sufficient measurements to monuments established by the State to assess the angular, horizontal and vertical closure of each traverse. All monuments established by the State for purposes of aerial photography control are based on the National Geodetic Survey system.

#### HORIZONTAL GROUND CONTROL

The coordinate location of the control or traverse points shall be based on traverses conducted by the Engineer's Surveyor meeting standards of accuracy as set forth below.

Reference may be made to standards of accuracy for Second Order, Class II, horizontal control traverses as described in the latest edition Federal Geodetic Control Committee publication entitled Standards and Specifications for Geodetic Control Networks.

- Azimuth closure shall not exceed 4.5 seconds times the square root of the number of traverse segments.
- Position closure after azimuth adjustment shall not exceed 1 in 20,000.
- In cases where a traverse approaches but does not entirely meet these standards of accuracy and the Engineer's Surveyor has assured itself that gross errors, mistakes

and blunders have been eliminated, the Engineer's Surveyor shall submit the traverse data to the State for further review. The State will make a determination as to the acceptability of the traverse as an exception to the standard and notify the Engineer's Surveyor accordingly.

#### VERTICAL GROUND CONTROL

Elevations established on the control and benchmarks shall be conducted by the Engineer's Surveyor meeting standards of accuracy as set forth below. Reference may be made to standards of accuracy for third order vertical control traverses as described in the latest edition of the Federal Geodetic Control Committee publication entitled Standards and Specifications for Geodetic Control Networks.

- Vertical closure shall not exceed 0.05 feet times the square root of the distance in miles.
- In case where a traverse approaches but does not entirely meet these standards of accuracy and the Engineer's Surveyor has assured itself that gross errors, mistakes and blunders have been eliminated, the Engineer's Surveyor shall submit the traverse data to the State for review. The State will make a determination as to the acceptability of the traverse as an exception to the standard, and the State will notify the Engineer's Surveyor accordingly.
- Document field work and submit field data to the State.

Additionally, the Engineer shall locate previously set control points and benchmarks established by State (State Datum); establish benchmark circuit (run levels) throughout the Project; establish additional benchmarks at intervals not to exceed 1,000 feet for the limits of the Project; tie benchmarks (station/offset) to Project baseline. Benchmarks shall be 20M (ASTM) (3/4-inch) diameter, 48 inches long, located near the existing ROW line at a measured distance. All benchmark circuits shall be tied to the State's elevation datum. Perform the benchmark circuits in accordance with good surveying practices. The Engineer's Surveyor shall verify the closure and submit adjustments to State for approval prior to beginning the field surveys.

Provide 8 1/2" x 11" location sketches for all control points and benchmarks. These sketches shall be signed, sealed and dated by a Registered Professional Land Surveyor (RPLS).

3. Survey Control Index Sheets. The Engineer's Surveyor shall prepare a Survey Control Index Sheet and a Horizontal and Vertical Control Sheet, signed, sealed and dated by the professional engineer in direct responsible charge of the surveying and the responsible RPLS for insertion into the plan set. The Survey Control Index Sheet shows an overall view of the project control and the relationship or primary monumentation and control used in the preparation of the project; whereas, the Horizontal and Vertical Control sheet identifies the primary survey control and the survey control monumentation used in the preparation of the project. Both the Survey Control Index Sheet and the Horizontal and Vertical Control Sheet should be used in conjunction with each other.

The following information should be shown on the Survey Control Index Sheet:

- Overall view of the project and primary control monuments set for control of the project.
- Identification of the control points.
- Baseline and centerline.
- Graphic (Bar) Scale.
- North Arrow.
- Placement of note "The survey control information has been accepted and incorporated into this PS&E" which is signed, sealed, and dated by a Texas Professional Engineer.
- RPLS signature, seal and date.
- TxDOT title block containing District Name, County, Highway, and CSJ.

The following information should be shown on the Horizontal and Vertical Control Sheet:

- Location for each control point, showing baseline and centerline alignment and North arrow.
  - Station and offset (with respect to the baseline or centerline alignments) of each identified control point.
  - Basis of Datum for horizontal control (base control monument, benchmark name, number, datum).
  - Basis of Datum for the vertical control (base control monument, benchmark name, number, datum).
  - Date of current adjustment of the datum.
  - Monumentation set for Control (Description, District name/number and Location ties).
  - Surface Adjustment Factor and unit of measurement.
  - Coordinates (SPC Zone and surface or grid).
  - Relevant metadata.
  - Graphic (Bar) Scale.
  - Placement of note "The survey control information has been accepted and incorporated into this PS&E" which is signed, sealed and dated by a Texas Professional Engineer.
  - RPLS signature, seal and date.
  - TxDOT title block containing District Name, County, Highway No., and CSJ.
4. Perform datum ties as required. If required, establish an elevation base on the project control's datum to other public entities published benchmarks.
  5. Establish additional and verify existing control points. Horizontal and Vertical control ties should be made and tabulated, to other control points in the vicinity, which were established by other sources such as, the National Geodetic Survey (NGS), and the Federal Emergency Management Agency (FEMA), and as directed by the State.
  6. Verify Digital Terrain Model (DTM) (cross sections at panel points) and planimetric mapping (DGN) provided by the State. Obtain additional existing ground cross sections as necessary to supplement the DTM files. Obtain cross sections at the center panel points to verify the DTM.

7. Obtain profile and cross section intersecting streets and driveways (to 50 feet outside ROW for driveways, and 200 feet for intersecting streets and 500 feet for intersecting streets greater than two lanes wide) for tie into project.
8. Obtain cross section drainage channels for a distance of 200 feet each way outside the ROW lines. Cross sections shall not exceed 100 feet intervals and shall be taken at right angles to the channels. The width of the cross sections shall cover the top of the channel over bank extending at least 50 feet beyond. Cross section data shall include flow line of the channel.
9. Secure right-of-entry (short of litigation), as needed for the project and the Engineer shall not commit acts which will result in damages to private property and the Engineer will make every effort to comply with the wishes and address the concerns of private property owners.
10. Locate existing underground and overhead utilities (location, elevation, size and direction).
11. Locate existing ROW.
12. ROW staking for additional field topography related to design work.
13. Review ROW maps.
14. Determine any changes in topography from outdated maps due to development, erosion, etc.
15. Determine type of existing material, existing pavements, etc.
16. Obtain profiles of existing drainage facilities.
17. Provide details of existing bridge structures. Obtain measurement of hydraulic opening under existing bridges.
18. Obtain top of manhole and flowline elevations, type and size, etc. of manholes, inlets, and valves of utilities.
19. Provide temporary signs, traffic control, flags, safety equipment, etc. and obtain necessary permits.
20. Obtain ties to existing bridges or culverts that may conflict with new construction.
21. Obtain line (PGL) and the edges of slab at bent location.
22. Tie down soil boring locations by station, offset and surface elevation.
23. The Engineer's Surveyor using wetlands delineation information provided by the State shall stake and fence the areas containing wetlands. The Engineer's Surveyor is to provide information back to the Engineer in an electronic file to be incorporated onto the Plan and Profile (P&P) sheets. This staking and fencing at the wetland areas shall be handled under separate agreement.

24. The Engineer's Surveyor shall control traffic in and near surveying operations adequately to comply with the latest edition of the TMUTCD. In the event field personnel must divert traffic or close traveled lanes, a Traffic Control Plan shall be prepared by the Engineer's Surveyor and approved by the State prior to commencement of field work. A copy of the approved plans shall be in the possession of field personnel on the job site at all times and shall be made available to State personnel upon request.
25. If at any time during the contract period, the Engineer's Surveyor encounters unforeseen circumstances which may materially affect the scope, complexity or character of the work authorized by the State, the Engineer's Surveyor shall notify the State in writing immediately with a complete description of the circumstances encountered.
26. The following definitions shall apply:
  - DGN-Two dimensional digital map containing natural ground features and improvements plotted in a horizontal plane along the X and Y axes. A planimetric map does not include relief elements such as spot elevations, cross-sections, or contours.
  - DTM-Three dimensional digital model of the ground containing those features necessary to define surface relief. A three dimensional model does not normally contain those planimetric features not necessary to define relief.
  - Horizontal and vertical ground control-Survey control points for which the X and Y coordinate and elevation have been determined by on the ground surveys.

**150.2. Survey Technical Requirements.** The Engineer shall perform each design and construction survey in compliance with the following technical requirements:

1. Each design survey and construction survey shall be performed under the direct supervision of a registered professional land surveyor currently registered with the Texas Board of Professional Land Surveying.
2. Horizontal and Vertical ground control used for design surveys and construction surveys , furnished to the Engineer's Surveyor by the State or based on acceptable methods conducted by the Engineer's Surveyor, shall meet the standards of accuracy required by the State.

Reference may be made to standards of accuracy for horizontal control traverses, as described in the FGCS Standards and Specifications for Geodetic Control Networks, latest edition, the TxDOT Survey Manual, latest edition, or the TSPS Manual of Practice for Land Surveying in the State of Texas, as may be applicable.

3. Side shots or short traverse procedures used to determine horizontal and vertical locations shall meet the following criteria:

- Side shots or short traverses shall begin and end on horizontal and vertical ground control as described as described above.
- The Engineer shall use standards, procedures and equipment (may be GPS Equipment, LiDAR, Total Stations, etc.) such that horizontal locations relative to the control may be reported within the following limits:
  - Bridges and other roadway structures: less than 0.1 of one foot.
  - Utilities and improvements: less than 0.2 of one foot
  - Cross-sections and profiles: less than 1 foot.
  - Bore holes: less than 3 feet.
- The Engineer shall use standards, procedures and equipment (may be GPS Equipment, LiDAR, Total Stations, etc.) such that vertical locations relative to the control may be reported within the following limits:
  - Bridges and other roadway structures: less than 0.02 of one foot.
  - Utilities and improvements: less than 0.03 of one foot.
  - Cross-sections and profiles: less than 0.1 of one foot.
  - Bore holes: less than 0.5 of one foot.

#### **FC 160 (160) – Roadway Design Roadway Design Controls**

The Engineer shall inform the State of changes made from previous initial meetings regarding each exception, waiver, and variance that may affect the design. The Engineer shall cease all work under this task until the exceptions, waivers, and variances have been resolved between the Engineer and the State unless otherwise directed by the State to proceed. The Engineer shall identify, prepare exhibits and complete all necessary forms for Design Exceptions and Waivers within project limits prior to the 30% Submittal. These exceptions shall be provided to the State for coordination and processing of approvals.

##### **160.1. Roadway Design.**

The Engineer shall provide roadway plan and profile drawings using CADD standards as required by the State. The drawings shall consist of a planimetric file of existing features and files of the proposed improvements. The roadway base map shall contain line work that depicts existing surface features obtained from the schematic drawing. Existing major subsurface and surface utilities shall be shown. Existing and proposed right-of-way lines shall be shown. Plan and Profile to be shown on separate or same sheets (this depends upon width of pavement) for main lanes, frontage roads, and direct connectors.

The plan view shall contain the following design elements:

1. Calculated roadway centerlines for mainlanes and cross streets as applicable. Horizontal control points shall be shown. The alignments shall be calculated using GEOPAK.
2. Pavement edges for all improvements (mainlanes, cross streets, and driveways).
3. Lane and pavement width dimensions.
5. Proposed structure locations, lengths and widths.
6. Direction of traffic flow on all roadways. Lane lines and arrows indicating the number of lanes shall also be shown.



7. Drawing scale shall be 1"=100'
8. ROW lines and easements.
9. Begin/end superelevation transitions and cross slope changes.
10. Limits of rip rap, block sod, and seeding.
11. Existing utilities and structures.
12. Benchmark information.
13. Radii call outs, curb location, Concrete Traffic Barrier (CTB), guard fence, crash safety items and American with Disabilities Act Accessibility Guidelines (ADAAG) compliance items.

The profile view shall contain the following design elements:

1. Calculated profile grade for proposed mainlanes and cross streets, if applicable. Vertical curve data, including "K" values shall be shown.
2. Existing and proposed profiles along the proposed centerline of the mainlanes.
3. Water surface elevations at major stream crossing for 2, 5, 10, 25, 50, and 100 year storms.
4. Drawing vertical scale to be 1"=10'.

### **160.3. Typical Sections:**

Typical sections shall be required for all proposed and existing roadways and structures. Typical sections shall include width of travel lanes, shoulders, border widths, curb offsets, and ROW. The typical section shall also include PGL, centerline, pavement design, longitudinal joints, side slopes, sodding/seeding limits, concrete traffic barriers and sidewalks, if required, station limits, common proposed and existing structures, existing pavement removal (pavement coring shall be performed by the Engineer to determine existing pavement structure for removal items only, see FC 110) riprap, limits of embankment and excavation, etc. The typical sections shall also reference Pay Schedule for Item of work "Ride Quality of Pavement Surface".

**160.4. Mainlane Road Design:** The Engineer shall provide the design of mainlanes with full shoulders, The design shall be consistent with the approved schematic and the current Roadway Design Manual.

**160.5. Cross Streets.** The Engineer shall provide an intersection layout detailing the pavement design and drainage design at the intersection of each cross street. The layout shall include the curb returns, geometrics, transition length, stationing, pavement and drainage details. The Engineer shall design for full pavement width to the ROW and provide a transition to the existing roadway.

**160.6. Cut and Fill Quantities.** The Engineer shall develop an earthwork analysis to determine cut and fill quantities and provide final design cross sections at 100 feet intervals. Cross sections shall be delivered in standard GEOPAK format on 11"x17" sheets and electronic files. The Engineer shall provide all criteria and input files used to generate the design cross sections. Cross sections and quantities shall consider existing pavement removals. Annotation shall include at a minimum existing/proposed right of way, side slopes (front & back), profiles, etc.

Two sets of drawings shall be submitted by the Engineer at the 30%, 60%, and 90%, and final submittals, respectively.

**160.7. Plan Preparation.** The Engineer shall prepare roadway plans, profiles and typical sections for the proposed improvements. Prior to the 30% submittal the Engineer shall schedule a workshop to review profiles and cross-sections with the State. The profile and cross sections shall depict the 2, 5, 10, 25, 50, 100 and 500 year (if available) water surface elevations. The drawings will provide an overall view of the roadway and existing ground elevations with respect to the various storm design frequencies for the length of the project. This will enable the State to determine the most feasible proposed roadway profile. The State will approve the proposed profiles and cross sections before the Engineer continues with the subsequent submittals. This scope of services and the corresponding cost proposal are based on the Engineer preparing plans to construct main lanes, and cross streets at intersections. The roadway plans shall consist of the types and be organized in the sequence as described in "Stand Alone Manual Notice Number 00-1".

**160.8. Removal Plans.** The Engineer shall prepare plans showing all existing features to be removed in plan-view only. Plan sheets will be at a scale of 1"=100'.

**160.9. Pavement Design.** The Engineer shall incorporate the pavement design developed by the State for this project.

**160.10. Pedestrian and Bicycle Facilities.** The Engineer shall coordinate with the State to incorporate pedestrian and bicycle facilities as required or shown on the project's schematic. All pedestrian/bicycle facilities must be designed in accordance with the latest Americans with Disabilities Act Accessibility Guidelines (ADAAG), the Texas Accessibility Standards (TAS), and the AASHTO Guide for the Development of Bicycle Facilities

## **FC 160 (161) – Roadway Design Drainage**

### **161.1. Drainage Report.**

1. Overview - The Engineer shall prepare a single comprehensive drainage study and report of the project area. The analysis and report shall cover the hydrologic and hydraulic analysis for approximately 6.4 miles of roadway improvement, including 9 cross drainage structures. Drainage will be provided primarily through median and roadside ditches. However, approximately 2,600 LF of storm sewer is anticipated between Station 836+00 to 862+00, if feasible. There are no bridge crossings.
2. Hydrologic Studies - The Engineer shall conduct hydrologic analysis for approximately 6.4 miles of roadway and the contributing drainage area to the roadway and cross drainage structures. This analysis shall incorporate a thorough evaluation of the methodology available, comparison of the results of two or more methods, and calibration of results against measured data, if available. The analysis shall consider the pre-construction (existing) and post-construction (proposed) conditions. Specific scope of work includes the following:
  - A. Delineate existing conditions drainage area boundaries for the approximately 6.4 miles of roadway ROW and contributing drainage areas to the existing 9 cross drainage structures. This includes delineation of drainage areas to each crossing/outfall as well as further delineation of sub-drainage areas specific to each existing and proposed ditch and storm sewer. Existing hydrologic studies will not be used without Engineer's assessment of validity.

- B. Determine existing conditions hydrologic parameters such as impervious covered areas, overland flow paths and slopes from appropriate sources including but not limited to topographic maps, GIS modeling, and construction plans and existing hydrologic studies. This will be performed for the proposed approximately 6.4 miles of roadway ROW and contributing drainage area to the 9 cross drainage structures. This includes the larger drainage areas to each crossing/outfall as well as sub-drainage areas specific to each existing and proposed ditch and storm sewer. Existing hydrologic studies will not be used without Engineer's assessment of validity.
- C. Calculate existing conditions discharges using appropriate hydrologic methods. Include at a minimum, the "design" frequency to be specified by the State and the 1% annual expedience probability (AEP) storm frequency. It may be required to include the full range of frequencies (50%, 20%, 10%, 4%, 2%, 1%, and 0.2% AEP). This includes development of both peak flows and full hydrographs.
- D. Compare calculated discharges to the effective FEMA flows, for studied crossings, if FEMA flows exist. If calculated discharges are to be used in the model instead of the effective FEMA flows, full justification should be documented.
- E. Delineate proposed conditions drainage area boundaries for the proposed approximately 6.4 miles of roadway ROW and contributing drainage areas to the proposed 9 cross drainage structures. This includes delineation of drainage areas to each crossing/outfall as well as further delineation of sub-drainage areas specific to each existing and proposed ditch / storm sewer.
- F. Determine proposed conditions hydrologic parameters such as impervious covered areas, overland flow paths and slopes from appropriate sources including but not limited to topographic maps, GIS modeling, and construction plans and existing hydrologic studies. This will be performed the proposed approximately 6.4 miles of roadway ROW and contributing drainage area to the 9 cross drainage structures. This includes the larger drainage areas to each crossing/outfall as well as sub-drainage areas specific to each existing and proposed ditch and storm sewer.
- G. Calculate proposed conditions discharges using appropriate hydrologic methods. Include at a minimum, the "design" frequency to be specified by the State and the 1% AEP storm frequency. It may be required to include the full range of frequencies (50%, 20%, 10%, 4%, 2%, 1%, and 0.2% AEP). This includes development of both peak flows and full hydrographs.
3. Hydraulic Studies: Cross Structures – The Engineer shall analyze 9 cross drainage structures. To accommodate the proposed roadway improvements, it is assumed that existing crossings will be lengthened at a minimum, but may also need to be expanded/reconstructed to increase capacity. This scope of work does not include the detailed design of outfall improvements outside of the right of way, except for ditch outfall transitions of cross drainage culvert structures to the existing ditch. Hydraulic analysis will be performed for the following structures

Crossing Number	Schematic Approximate Station	Existing Size	Proposed Size
1	666+34.89	3-4x3	3-4x3
2	706+68.12	4-3x3	4-5x4
3	768+28.43	4-3x3	4-5x3

4	820+57.12	1-8x2	2-5x3
5	834+79.32	2-5x5	2-5x3
6	836+01.92	2-36" RCP	1-3x3
7	861+91.08	6-4x4	4-5x4
8	898+93.75	3-4x4	3-6x3
9	944+90	8-3x3	4-4x4

The scope of work for the 9 cross culverts shall include:

- A. Determine existing and proposed conditions peak flows at each crossing, based on the hydrologic analysis performed as part of Task 2.
  - B. Develop a hydraulic model for each crossing, in HEC-RAS, and determine a reasonable downstream downstream tailwater condition based on information available. If available, the current effective FEMA models, will be used as a base model for the analysis. If a "best available data" model is provided by the local floodplain administrator, it shall be utilized accordingly for this analysis. The provided base model shall be reviewed for correctness and updated as needed. If the provided effective model is not in HEC-RAS format, it shall be converted to HEC-RAS for this analysis. If the FEMA effective model or other "best available" model is not available, the Engineer shall develop the model based on survey information.
  - C. Determine the existing conditions 2, 5, 10, 25, 50, 100 and 500 year (if available), water surface elevations at each crossing. This data shall be provided in an interim letter report to the State to support development of design roadway profiles.
  - D. Analyze each crossing to determine recommended proposed size and configuration for each drainage crossing. The improvements may include extending, adjusting, or replacing culvert crossings. Analysis recommendations should accommodate the proposed roadway design and minimize the interference with the passage of traffic or incur damage to the highway and local property in accordance with the State's Hydraulic Design Manual, District Criteria and any specific guidance provided by the State.
  - E. Quantify impacts, beneficial or adverse, in terms of increases in peak flow rates and water surface elevations for the above listed hydraulic conditions and hydrologic events. Impacts will be determined both upstream and downstream of the culvert crossings for events up to an including the 1% AEP storm. If necessary, mitigation measures shall be presented, along with the advantages and disadvantages of each. Each method must consider the effects on the entire area.
4. Hydraulic Studies: Ditches and Storm Drains – The Engineer shall analyze ditches and storm drains for approximately 6.4 miles of roadway, with approximately 9 outfalls, using software approved by the State. The majority of the roadway is anticipated to be drained by roadside and median ditches. However, storm sewer may be utilized in one specific location, between Station 836+00 to 862+00. Hydraulic analysis of the existing and

proposed ditch and storm sewer system, including any necessary in-line or off-line detention, will be performed primarily using XP-SWMM. Specific scope of work includes the following:

- A. Determine existing and proposed peak flows and hydrographs for each ditch and sewer section, based on the hydrologic analysis performed as part of Task 2.
  - B. Develop existing conditions XP-SWMM model for each of the approximately 9 outfall systems. The XP-SWMM model shall include median and roadside ditches and culverts connecting ditches and shall terminate at the cross drainage structure, which will be modeled using HEC-RAS.
  - C. Determine existing conditions tailwater elevation at each outfall based on the HEC-RAS models developed for each cross drainage structure. The design water surface elevation at each cross drainage structure will be the starting basis for the analysis of the existing ditch system.
  - D. Assess existing drainage system in XP-SWMM to determine existing conditions discharges to cross drainage structures and the existing hydraulic grade line through the drainage system.
  - E. Develop proposed conditions XP-SWMM model for each of the approximately 9 outfall systems. The XP-SWMM model shall include median and roadside ditches, culverts connecting ditches, trunk-line storm sewer components, and shall terminate at the cross drainage structure, which will be modeled using HEC-RAS.
  - F. Determine proposed conditions tailwater elevation at each outfall based on the HEC-RAS models developed for each cross drainage structure. The design water surface elevation at each cross drainage structure will be the starting basis for the analysis of the proposed ditch / storm sewer system.
  - G. Assess proposed drainage system in XP-SWMM to determine proposed conditions discharges to cross drainage structures and the proposed hydraulic grade line through the drainage system. Proposed drainage improvements shall minimize the interference with the passage of traffic or incur damage to the highway and local property in accordance with the State's Hydraulic Design Manual, District Criteria and any specific guidance provided by the state.
  - H. Optimize proposed drainage system in XP-SWMM to meet design criteria and to limit discharge into outfalls to the capacity of the system, which will be determined by the Engineer. Typically this will involve not increasing proposed discharges above existing discharges. Optimization will include, when possible, the use of in-line detention within the ditch and storm sewer system, with discharges controlled by restrictors or similar structures at interim culverts and outfalls. The Engineer shall also evaluate alternative flow routes, if necessary, to relieve system overload. Should in-line detention not be feasible, off-site detention in the vicinity of the proposed outfall may also be considered and assessed in the XP-SWMM model. Detention requirements shall be coordinated with the State. However, it is assumed that hydrograph routing within XP-SWMM will be performed to assess no adverse impact in both the 10% and 1% events.
  - I. Conduct a 1% AEP sheet flow analysis using the XP-SWMM model for both existing and proposed conditions.
5. Drainage Report – The Engineer shall provide the following reports:
- A. The Engineer shall prepare a brief letter report summarizing data collection efforts and preliminary findings. This report shall be prepared when the hydrologic and hydraulic analysis is approximately 30% complete. This report shall include the results of the existing condition hydraulic analysis of cross drainage structures. Profiles generated by

this effort shall be utilized in the development of design roadway profiles. These profiles must be submitted to and approved by the State before continuing with the preparation of the comprehensive drainage report.

- B. The Engineer shall prepare a single comprehensive drainage study and report of the project area, signed, sealed, and dated by a registered or licensed engineer. This shall include a draft report and a final report which addresses comments provided by the State. The drainage report shall include, at a minimum, the following sections:
- i. Introduction: location, study objectives, general creek and watershed information, and other pertinent facts
  - ii. Hydrology: watershed description, soil and land use information, south of hydrologic data and methodology or models used to develop flow data, pertinent input data and parameters of hydrologic analysis, summary table of results for a full range of peak discharges.
  - iii. Hydraulics: overview of hydraulic modeling process, including data sources, specific model used, description of existing structures, drainage system characteristics, and other pertinent facts; discussion of design alternatives and the results of respective hydraulic modeling for the scenarios evaluated; hydraulic model output data for existing and proposed conditions
  - iv. Summary of Conclusions and Recommendations: summary of study objectives, alternatives considered, analysis findings, and recommended solutions.
  - v. Exhibits: including at a minimum, location map, topography map, drainage area map, land-use map, and FEMA FIRM
  - vi. Appendices: detailed hydrologic calculations, models, model output files, photographs, and other pertinent information
  - vii. Compact Disc: including PDF of full report and exhibits and all appendices (including hydrologic and hydraulic models)

**161.2. Culvert and Storm Drain Design.** The Engineer shall develop design details that minimize the interference with the passage of traffic or incur damage to the highway and local property. The Engineer shall provide layouts, drainage area maps, and design of all drainage components. The Engineer shall design all conventional storm drainage and cross drainage in conformance with the latest edition of State Hydraulic Manual, Districts' criteria, and any specific guidance provided by the State. Storm drain design shall be performed using WinStorm, GEOPAK Drainage, or XP-SWMM. Cross drainage design shall be performed using WINSTORM, HY 8 or HEC RAS. When oversized storm drains are used for detention, the Engineer shall evaluate the hydraulic gradeline throughout the whole system, within project limits, for the design frequency(ies). The Engineer shall coordinate with the State any proposed changes to the detention systems. The State will assess the effects of such changes on the comprehensive drainage studies. The Engineer shall coordinate with the State and designers of adjacent projects to check that all proposed drainage systems accommodate the proposed construction phasing plan.

The Engineer shall perform the following:

1. Hydrologic and Hydraulic analysis of drainage systems, including storm sewer, ditch, and culvert calculations. Assumes 3 rainfall runoff calculation sheets, 2 storm sewer hydraulic data sheets, and 1 table of culvert hydraulic data (Culverts 1, 4, 5 and 6).
2. Prepare culvert layout sheets:
  - Assume 9 culvert layout sheets. See Section 161.1-3 for list of existing culvert crossings.

3. Identify areas requiring trench protection, excavation, shoring and de-watering.
4. Prepare drainage area maps.
  - Assume 1 overall drainage area map sheets (drainage crossings)
  - Assume 21 drainage area map sheets (roadway drainage)
5. Prepare drainage plan/profile sheets for drainage systems
  - Assumes two storm sewer systems (6 P&P sheets Station 836+00 to 862+00)
  - Assume 2 storm sewer lateral sheets
6. Select standard details from State or District's list of standards for items such as inlets, manholes, junction boxes and end treatment, etc.
7. Prepare details for non-standard inlets, manholes and junction boxes.
8. Prepare drainage details for outlet protection, outlet structures and utility accommodation structures.
9. Identify pipe strength requirements.
10. Prepare drainage quantity summaries.
11. Identify potential utility conflicts and design around them, wherever possible.
12. Take into consideration pedestrian facilities, utility impacts, driveway grades, and concrete traffic barrier drainage impacts.
13. Identify existing ground elevation profiles at the ROW lines on storm sewer plan and profile sheets.
14. Prepare Hydraulic Data Sheets for the following bridge-class culvert crossings:
  - Culvert 2 Bridge Class Culvert. Assumes 2 hydraulic data sheets
  - Culvert 3 Bridge Class Culvert. Assumes 2 hydraulic data sheets
  - Culvert 7 Bridge Class Culvert. Assumes 2 hydraulic data sheets
  - Culvert 8 Bridge Class Culvert. Assumes 2 hydraulic data sheets
  - Culvert 9 Bridge Class Culvert. Assumes 2 hydraulic data sheets

The Engineer shall use standard details where practical. Prepare box culvert supplement sheet (BCS).

### **161.3. Layout, Structural Design and Detailing of Drainage Features.**

The Engineer shall develop layouts for the following:

1. Culverts: New culverts; culvert replacement.
2. Storm Sewers: New or modified storm sewers; inlets; manholes; trunk lines.
3. Outfall channels within existing ROW
4. Detention pond (1 Pond estimated), associated outlet structures and details, if applicable. If information not available at the time of initial scoping this work shall be considered as additional work.

### **FC 160 (162) – Roadway Design**

#### **Signing, Pavement Markings and Signalization (Permanent)**

**162.1. Signing.** The Engineer shall prepare drawings, specifications and details for all signs. The Engineer shall coordinate with the State (and other Engineers as required) for overall temporary, interim and final signing strategies and placement of signs outside contract limits. The Engineer shall:

- Prepare sign detail sheets for signs showing dimensions, lettering, shields, borders, corner radii, etc., and shall provide a summary of large and small signs.

- Designate the shields to be attached to guide signs.
- Illustrate and number the proposed signs on plan sheets.
- Select each sign foundation from State Standards.

**162.2. Pavement Marking.** The Engineer shall detail both permanent and temporary pavement markings and channelization devices on plan sheets. The Engineer shall coordinate with the State (and other Engineers as required) for overall temporary, interim, and final pavement marking strategies. The Engineer shall select pavement markings from the latest State standards.

The Engineer shall provide the following information on sign/pavement marking layouts:

- Roadway layout.
- Center line with station numbering.
- Culverts and other structures that present a hazard to traffic.
- Existing signs to remain, to be removed, or to be relocated.
- Proposed signs (illustrated, numbered and size).
- Proposed markings (illustrated and quantified) which include pavement markings, object markings and delineation.
- Quantities of existing pavement markings to be removed.
- Proposed delineators and object markers.
- The number of lanes in each section of proposed highway and the location of changes in numbers of lanes.
- Right-of-way limits.
- Direction of traffic flow on all roadways.

**162.3. Traffic Warrant Studies.** The Engineer shall prepare a traffic signal warrant study to support their recommendation for the continuous activation of an existing traffic signal or a proposed traffic signal based on projected volumes. Each warrant study shall include addressing pedestrian signals along with obtaining both traffic and pedestrian counts.

The Engineer shall implement each proposed traffic signal improvement within existing State right-of-way unless otherwise approved by the State. The Engineer shall refer to latest version of the TMUTCD, *Traffic Signal Manual*, and The State's roadway and traffic standards for work performed for either temporary or permanent traffic signals. The Engineer shall develop and include a timing plan for each signal improvement.

Warrant studies are proposed at the following intersections:

Existing signals

- SH 36 at FM 422
- SH 36 at Fritzella Street

Existing Flashing Beacon Intersection

- SH 36 at 1994

**162.4. Traffic Signals.** Based upon the results of the Traffic Warrant Studies, the Engineer shall identify and prepare Traffic Signal Plans for all warranted traffic signals. The Engineer shall confirm the power source for all signals and coordinate with the appropriate utility agency. Traffic Signal Plans shall be signed and sealed by a Texas Registered Professional Engineer. The Engineer shall develop all quantities, general notes, specifications and incorporate the



appropriate agency standards required to complete construction. Traffic signal poles, fixtures, signs, and lighting shall be designed per the Green Ribbon Report recommendations and standards.

The following information shall be provided in the Traffic Signal Plans:

1. Layout

- a. Estimate and quantity sheet
  - (1) List of all bid items
  - (2) Bid item quantities
  - (3) Specification item number
  - (4) Paid item description and unit of measure
- b. Basis of estimate sheet (list of materials)
- c. General notes and specification data.
- d. Condition diagram
  - (1) Highway and intersection design features
  - (2) Roadside development
  - (3) Traffic control including illumination
- e. Plan sheet(s)
  - (1) Existing traffic control that will remain (signs and markings)
  - (2) Existing utilities
  - (3) Proposed highway improvements
  - (4) Proposed installation
  - (5) Proposed additional traffic controls
  - (6) Proposed illumination attached to signal poles.
  - (7) Proposed power pole source
- f. Notes for plan layout
- g. Phase sequence diagram(s)
  - (1) Signal locations
  - (2) Signal indications
  - (3) Phase diagram
  - (4) Signal sequence table
  - (5) Flashing operation (normal and emergency)
  - (6) Preemption operation (when applicable)
  - (7) Contact responsible Agency to obtain interval timing, cycle length and offset
- h. Construction detail sheets(s)
  - (1) Poles (State standard sheets)
  - (2) Detectors
  - (3) Pull Box and conduit layout
  - (4) Controller Foundation standard sheet
  - (5) Electrical chart
- i. Marking details (when applicable)
- j. Aerial or underground interconnect details (when applicable)

2. General Requirements

- a. Contact local utility company
  - (1) Confirm power source
- b. Prepare governing specifications and special provisions list
- c. Prepare project estimate

3. Summary of Quantities
  - a. Signal quantity tabulations
  - b. Small sign tabulations
4. Sign Detail Sheets
  - a. All signs except route markers
  - b. Dimensioning (letters, shields, borders, etc.)

Traffic Signals are anticipated at the following locations:

- SH 36 at FM 422
- SH 36 at Fritzella Street
- SH 36 at 1994

**FC 160(163) – Roadway Design**  
**Miscellaneous (Roadway)**

The Engineer shall provide the following services:

**163.1. Retaining Walls and Miscellaneous Structures. Not Applicable**

**163.2. Traffic Control Plan, Detours, Sequence of Construction.** The Engineer shall prepare Traffic Control Plans (TCP) Phasing Layouts (1:100 double banked) for the project totaling no more than 17 sheets per phase for 2 phases (34 sheets). 2 sub-phases (8 sheets total, 4 per sub-phase) are anticipated for TCP in the area of constricted ROW, such as Guy, TX. TCP Typical Sections will consist of up to 6 sections per phase for each of the 2 phases and 2 sections per sub-phase totaling 8 sheets (2 sections per sheet). An Overall Phasing Layout will be shown on up to 2 sheets. Advance Warning Layouts (NTS) will be shown on up to 2 sheets. Intersection layouts (1:50) will be used for 3 major intersections and/or intersection realignments (FM 442, Fritzella Street, and FM 1994). Minor intersections, cross culverts, driveways, temporary drainage, etc. will be shown on TCP Detail Sheets (NTS). The Engineer is to complete Form 2229-Significant Project Procedures along with Page 4 of Form 1002, specifically titled Accelerated Construction Procedures. A detailed TCP shall be developed in accordance with the latest edition of the TMUTCD. The Engineer is to implement the current Barricade and Construction (BC) standards as applicable. The Engineer shall interface and coordinate phases of work, including the TCP, with adjacent Engineers. The adjacent northern section (Section 8) of SH 36 is assumed to have been completed prior to construction beginning on this design section.

1. The Engineer shall provide a written narrative of the construction sequencing and work activities per phase and determine the existing and proposed traffic control devices (regulatory signs, warning signs, guide signs, route markers, construction pavement markings, barricades, flag personnel, temporary traffic signals, etc.) to be used to handle traffic during each construction sequence. The Engineer shall show proposed traffic control devices at grade intersections during each construction phase (stop signs, flagperson, signals, etc.). The Engineer shall show temporary roadways, structures and detours required to maintain lane continuity throughout the construction phasing. If temporary retaining walls are required, show the limits on the applicable TCP.
2. Coordinate with the State in scheduling a Traffic Control Workshop and submittal of the TCP for approval by the Traffic Control Approval Team (TCAT). The Engineer shall

- assist the State in coordinating mitigation of impacts to adjacent schools, emergency vehicles, pedestrians, bicyclists and neighborhoods.
3. Develop each TCP to provide continuous, safe access to each adjacent property during all phases of construction and to preserve existing access. The Engineer shall notify the State in the event existing access must be eliminated, and must receive approval from the State prior to any elimination of existing access.
  4. Design temporary drainage to replace existing drainage disturbed by construction activities or to drain detour pavement. The Engineer shall show horizontal and vertical location of culverts and required cross sectional area of culverts.
  5. Prepare each TCP in coordination with the State. The TCP shall include interim signing for every phase of construction. Interim signing shall include regulatory, warning, construction, route, and guide signs. The Engineer shall interface and coordinate phases of work, including the TCP, with adjacent Engineers, which are responsible for the preparation of the PS&E for adjacent projects.
  6. Maintain continuous access to abutting properties during all phases of the TCP. The Engineer shall develop a list of each abutting property along its alignment. The Engineer shall prepare exhibits for and attend meetings with the public, as requested by the State.
  7. Make every effort to prevent detours and utility relocations from extending beyond the proposed Right-of-Way lines. If it is necessary to obtain additional permanent or temporary easements and Right-of-Entry, the Engineer shall notify the State in writing of the need and justification for such action. The Engineer shall identify and coordinate with all utility companies for relocations required.
  8. Describe the type of work to be performed for each phase of sequence of construction and any special instructions (e.g. storm sewer, culverts, illumination, signals, signing, paving surface sequencing or concrete placement, ROW restrictions, utilities, etc.) that the contractor should be made aware to include limits of construction, obliteration, and shifting or detouring of traffic prior to the proceeding phase.
  9. Include the work limits, the location of channelizing devices, positive barrier, location and direction of traffic, work area, stations, pavement markings, and other information deemed necessary for each phase of construction.

**163.3. Temporary Traffic Signals and Illumination:** If the Engineer determines that an existing traffic signal will be affected by the project, then the Engineer shall address the adjustment/realignment of traffic signal heads and the use of detection for mainlanes and side streets on the plans. The Engineer shall obtain traffic movement counts to address any new timing plans to minimize the impact during construction and to determine the storage length needed for left and right turn movements. The Engineer shall address lighting of signalized intersections, and shall coordinate with local utilities as approved by the State.

Traffic Signals are anticipated at the following locations:

- SH 36 at FM 422
- SH 36 at Fritzella Street
- SH 36 at 1994

**163.4. Storm Water Pollution Prevention Plans (SW3P).** The Engineer shall develop SW3P, on separate sheets from (but in conformance with) the TCP, to minimize potential impact to receiving waterways. The SW3P shall include text describing the plan, quantities, type, phase and locations of erosion control devices and any required permanent erosion control.

**163.5. Compute and Tabulate Quantities.** The Engineer shall provide the summaries and quantities for all milestone submittals.

**163.6. Testimony for Right of Way Hearings:**

If required, the Engineer shall support and testify in possible Right of Way hearings, as the Engineer of record in the Design of the SH 36 (Section 9) project, at the request of the State or the Attorney General's office you shall be required to do the following:

Research, study, analyze and review the SH 36 (Section 9) project and the assigned parcels for acquisition;

If requested, prepare litigation designs and standard 8.5 x 11 inch, 11 x 17 inch or 24 x 36 inch paper exhibits. These deliverables are considered to be litigation documents and not engineering documents requiring a P.E. seal.

Be available to prepare for and testify at hearings, depositions and trials, if requested, and;

Be available to assist and consult with the Attorney General's Office, with case preparation, if requested.

Assume: 40 parcels go to condemnation, 5-hours per hearing, 1-hour research and prep and 3-hours to meet with the Attorney General before each hearing (total 9 hours per parcel).

All meetings and hearings are in the Houston area.

**163.7. Estimate.** The Engineer shall independently develop and report quantities necessary to construct contract in standard State bid format at the specified milestones and Final PS&E submittals. The Engineer shall prepare each construction estimates using Estimator. The estimate shall be provided in DCIS format at the 95% and Final PS&E submittals.

**163.8. Specifications and General Notes.** The Engineer shall identify necessary standard specifications, special specifications, special provisions and the appropriate reference items. The Engineer shall prepare General Notes from the District's *Master List of General Notes*, Special Specifications and Special Provisions for inclusion in the plans and bidding documents. The Engineer shall provide General Notes, Special Specifications and Special Provisions in the required format, and other forms such as F 1002, Notice of Intent, Engineer Certification, Right of Way Certifications, etc.

**FC 160 (165) – Roadway Design  
Traffic Management Systems (Permanent).**

**165.1 Traffic Management Systems.** The Engineer shall design and provide details as a part of the State's Intelligent Transportation System to be managed from TranStar. The design shall include elements such as dynamic message signs, closed-circuit Television (CCTV) cameras, and loop or other vehicle detection devices. The Engineer shall prepare the design and details including conduit and cable, support structures, control equipment, etc. necessary to implement the system. The Engineer is to fully design and prepare communication backbone details to include fiber optic network design including details such as fiber optic cable Splicing Diagrams. The Engineer is to design all electrical circuits to support all devices proposed for the project. Design specifications shall be defined in the work authorization. The Engineer

shall also coordinate with the State Computerized Transportation Management Systems (CTMS) design section at the Houston District Office should the State have a computerized transportation management system under construction or in place and operating within the project limits. The Engineer will incorporate continuous conduit from approximate STA: 655+00 to STA: 992+43 for CTMS.

Assumed 4 DMS Locations, 2 vehicle detectors and 4 CCTV Locations. The fiber trunkline design is 1"=100 double banked.

### **FC 309 (309) – Design Verification/ Changes/ Alteration Construction Phase Services**

The Engineer shall provide Construction Phase Services at the written request of the State's project manager. The written request shall include a description of the work requested, a mutually agreed upon time limit, and any special instructions for coordination and submittal.

These services shall include, but are not limited to the following:

- Review and approval of shop drawings
- Responding to requests for information (RFIs)
  - Answering general questions
  - Providing clarification
- Assist the State in preparing change orders to the project plans where warranted by a change in field conditions or a change requested by the State.
- Other project related tasks in support of the State during construction

### **Deliverables**

#### **Plans**

The Engineer shall provide the following information at each submittal:

1. 30% Plans Submittal
  - 1.1. 12 sets of 11" x 17" plan sheets for the State District Review.
  - 1.2. Estimate of construction cost.
  - 1.3. Engineer's internal QA/QC markup set.
  - 1.4. Form 1002 and Design Exceptions with existing and proposed typical sections, location map and design exception exhibits.
  - 1.5. Draft Geotechnical Report.
  - 1.6. 1 set of roll format TCP phasing layouts for TCP workshop.
2. Between 30% Submittal and 60% Submittal:
  - 2.1. Engineer's internal QA/QC marked up set.

- 2.2. 1 set of a roll format TCP phasing layouts, 1 .pdf of plans sheets for TCP concept, and significant project procedures form (State Form 2229) to present at the DSRT for the State review.
- 2.3. For Division Hydraulic Review of existing Bridge Class Culverts, 5 sets of 11" x 17" Bridge Class Culvert Plan and Profile sheets and Hydrology & Hydraulics sheets, include project title sheet and project layout sheet.
- 2.4. Final Geotechnical Report.

3. 60% Plans Submittal:

- 3.1. 12 sets of 11" x 17" plan sets for the State District review.
- 3.2. Estimate of construction cost.
- 3.3. Engineer's internal QA/QC marked up set.
- 3.4. 1 set of a roll format TCP phasing layouts, 1 .pdf of plans sheets for TCP concept, and significant project procedures form (State Form 2229) to present at the DSRT for the State review.

4. State Bridge Review (7 sets of Bridge Class Culvert Layouts).

5. Review Submittal (90%)

- 5.1. 12 sets of 11" x 17" plan sheets for the State District Review.
- 5.2. Estimate of construction cost.
- 5.3. Marked up general notes
- 5.4. Construction schedule.
- 5.5. New Special Specifications and Special Provisions with Form 1814, if applicable.
- 5.6. Engineer's internal QA/QC marked up set.
- 5.7. Other supporting documents.

6. District Review Submittal (95%):

- 6.1. 12 sets of 11" x 17" plan sheets for the State district review
- 6.2. List of governing Specifications and Special Provisions in addition to those required.
- 6.3. Marked up general notes.
- 6.4. Plans estimate.
- 6.5. New Special Specifications and Special Provisions with Form 1814, if applicable.
- 6.6. Triple Zero Special Provisions.
- 6.7. Engineer sign, seal and date supplemental sheets (8 1/2" x 11").
- 6.8. Contract time determination summary.
- 6.9. Significant project procedures form.
- 6.10. Right-of-Way and utilities certification.
- 6.11. Temporary road closure letters.
- 6.12. Construction speed zone request.
- 6.13. Engineer's internal QA/QC marked-up set.
- 6.14. Other supporting documents.

7. Final submittal (100%).

- 7.1. 14 paper sets of 11" x 17"
- 7.2. *Revised supporting documents from 95% review comments.*
- 7.3. Final plans in PDF portfolio format. Plans may be signed and sealed electronically.

### **Electronic Copies**

The Engineer shall furnish the State with a CD/DVD of the final plans in the current CADD system used by the STATE, .pdf format, and in the District's File Management System (FMS) format.

The Engineer shall also provide separate CD/DVD containing cross section information (in dgn, XLR & ASCII formats) for the contractor's use.

Primavera (P3) file or the latest scheduling program used by the State for construction time estimate.

### **Calculations**

The Engineer shall provide a 3-ring binder with all quantity and non-structural design calculations.

Provide a bound copy of all engineering calculations, analysis, input calculations, quantities, geometric designs (GEOPAK GPK files), etc. relating to the project's structural elements. Project structural elements include, but are not limited to: bridges, retaining walls, overhead sign foundations, high-mast illumination foundations, non-standard culverts, custom headwalls and drainage appurtenances.

Provide working copies of all spreadsheets and output from any programs utilized on a CD/DVD in a universally reliable format.

The Engineer may provide the requested information on a CD/DVD. Submit element normally bound using a .pdf format.

**ATTACHMENT D**  
**WORK AUTHORIZATION**  
**D-1**  
**WORK AUTHORIZATION NO. \_\_\_\_\_**  
**CONTRACT FOR ENGINEERING SERVICES**

**THIS WORK AUTHORIZATION** is made pursuant to the terms and conditions of Article 5 of Engineering Contract No. \_\_\_\_\_ (the Contract) entered into by and between the State of Texas, acting by and through the Texas Department of Transportation (the State), and \_\_\_\_\_ (the Engineer).

**PART I.** The Engineer will perform engineering services generally described as \_\_\_\_\_ in accordance with the project description attached hereto and made a part of this Work Authorization. The responsibilities of the State and the Engineer as well as the work schedule are further detailed in exhibits A, B and C which are attached hereto and made a part of the Work Authorization.

**PART II.** The maximum amount payable under this Work Authorization is \$\_\_\_\_\_ and the method of payment is \_\_\_\_\_ as set forth in Attachment E of the Contract. This amount is based upon fees set forth in Attachment E, Fee Schedule, of the Contract and the Engineer's estimated Work Authorization costs included in Exhibit D, Fee Schedule, which is attached and made a part of this Work Authorization.

**PART III.** Payment to the Engineer for the services established under this Work Authorization shall be made in accordance with Articles 3 thru 5 of the contract, and Attachment A, Article 1.

**PART IV.** This Work Authorization shall become effective on the date of final acceptance of the parties hereto and shall terminate on \_\_\_\_\_, unless extended by a supplemental Work Authorization as provided in Attachment A, Article 1.

**PART V.** This Work Authorization does not waive the parties' responsibilities and obligations provided under the Contract.

**IN WITNESS WHEREOF**, this Work Authorization is executed in duplicate counterparts and hereby accepted and acknowledged below.

**THE ENGINEER**

**THE STATE OF TEXAS**

\_\_\_\_\_  
(Signature)  
\_\_\_\_\_  
(Printed Name)  
\_\_\_\_\_  
(Title)  
\_\_\_\_\_  
(Date)

\_\_\_\_\_  
(Signature)  
\_\_\_\_\_  
(Printed Name)  
\_\_\_\_\_  
(Title)  
\_\_\_\_\_  
(Date)

**LIST OF EXHIBITS**

Exhibit A	Services to be provided by the State
Exhibit B	Services to be provided by the Engineer
Exhibit C	Work Schedule
Exhibit D	Fee Schedule/Budget
Exhibit H-2	Subprovider Monitoring System Commitment Agreement



**ATTACHMENT D**  
**D-2**  
**SUPPLEMENTAL WORK AUTHORIZATION NO. \_\_\_\_**  
**WORK AUTHORIZATION NO. \_\_\_\_**  
**CONTRACT FOR ENGINEERING SERVICES**

**THIS SUPPLEMENTAL WORK AUTHORIZATION** is made pursuant to the terms and conditions of Article 5 Contract No. \_\_\_\_\_ hereinafter identified as the "Contract," entered into by and between the State of Texas, acting by and through the Texas Department of Transportation (the State), and \_\_\_\_\_ (the Engineer).

The following terms and conditions of Work Authorization No. \_\_\_\_ are hereby amended as follows:

This Supplemental Work Authorization shall become effective on the date of final execution of the parties hereto. All other terms and conditions of Work Authorization No. \_\_\_\_ not hereby amended are to remain in full force and effect.

**IN WITNESS WHEREOF**, this Supplemental Work Authorization is executed in duplicate counterparts and hereby accepted and acknowledged below.

**THE ENGINEER**

\_\_\_\_\_  
(Signature)  
\_\_\_\_\_  
(Printed Name)  
\_\_\_\_\_  
(Title)  
\_\_\_\_\_  
(Date)

**THE STATE OF TEXAS**

\_\_\_\_\_  
(Signature)  
\_\_\_\_\_  
(Printed Name)  
\_\_\_\_\_  
(Title)  
\_\_\_\_\_  
(Date)

**ATTACHMENT E**  
**FEE SCHEDULE**  
**(Final Cost Proposal)**

This attachment provides the basis of payment and fee schedule. **The basis of payment for this contract is indicated by an "X" in the applicable box.** The basis shall be supported by the Final Cost Proposal (FCP) shown below. If more than one basis of payment is used, each one must be supported by a separate FCP.

"X"	Basis	
X	Lump Sum	The lump sum shall be equal to the maximum amount payable. The lump sum includes all direct and indirect costs and fixed fee. The Engineer shall be paid pro rata based on the percentage of work completed. For payment the Engineer is not required to provide evidence of actual hours worked, travel, overhead rates or other evidence of cost.
X	Unit Cost	The unit cost(s) for each type of unit and number of units are shown in the FCP. The unit cost includes all direct and indirect costs and fixed fee. The Engineer shall be paid based on the type and number of units fully completed and the respective unit cost. For payment, the Engineer is not required to provide evidence of actual hours worked, travel, overhead rates or any other cost data. The FCP may include special items, such as equipment which are not included in the unit costs. Documentation of these special costs may be required. The maximum amount payable equals the total of all units times their respective unit cost plus any special direct items shown.
X	Specified Rate Basis	The specified rates for each type of labor are shown in the FCP below. The FCP may include special items, such as equipment which are not included in the specified rates. Payment shall be based on the actual hours worked multiplied by the specified rate for each type of labor plus other agreed to special direct cost items. The specified rate includes direct labor and indirect cost and fixed fee. The State may request documentation of reimbursable direct costs including hours worked. Documentation of special item costs may be required. The specified rate is not subject to audit.
X	Cost Plus Fixed Fee	<p>Payment shall be based on direct and indirect costs incurred <u>plus</u> a pro rata share of the fixed fee based on the ratio of <u>labor and overhead cost incurred to total estimated labor and overhead cost in the FCP</u> or the percentage of work completed. The invoice must itemize labor rates, hours worked, other direct costs and indirect costs. The Engineer may be required to provide documentation of hours worked and any eligible direct costs claimed. The provisional overhead rate charged is subject to audit and adjustment to actual rates incurred. The FCP below shows the hourly rates for labor, other direct expenses including but not limited to travel and allowable materials, provisional overhead rate and the fixed fee.</p> <p style="margin-left: 40px;">___A. Actual Cost Plus Fixed Fee - Actual wages are paid (no minimum, no maximum. This option does not apply to Indefinite Deliverable Contracts.)</p> <p style="margin-left: 40px;"><u>X</u> B. Range of Cost Plus Fixed Fee – Actual wages <u>must</u> be within the allowable range shown on the Final Cost Proposal.</p>

## **ATTACHMENT E – FEE SCHEDULE**

Final Cost Proposal (FCP) Supporting Basis of Payment

\* The **MAXIMUM AMOUNT PAYABLE** is **\$ 2,539,225.25**

The maximum amount payable is based on the following data and calculations:

\* The maximum amount payable must be based on the contract scope. The work authorization fee schedules will be derived from this attachment.

\* Range of cost plus fixed fee labor rates billed to the State for specific employee of the Engineer or its Sub-providers may not increase their rate by more than 3.4 percent within a classification within any twelve month period.

ATTACHMENT E- FEE SCHEDULE			
COST PLUS FIXED FEE PAYMENT BASIS			
PRIME PROVIDER NAME:		Brown & Gay Engineers, Inc.	
DIRECT LABOR			
LABOR/STAFF CLASSIFICATION	YEARS OF EXPERIENCE	HOURLY RATE	
		MINIMUM	MAXIMUM
Project Manager	10 to 20	\$7.25	\$73.43
Quality Manager	10 to 20	\$7.25	\$78.59
Senior Engineer	15+	\$7.25	\$66.00
Project Engineer	10 to 15	\$7.25	\$48.00
Design Engineer	5 to 10	\$7.25	\$40.63
Engineer-In-Training	1 to 5	\$7.25	\$31.05
Senior Engineer Tech	15+	\$7.25	\$38.00
Engineer Tech	5 to 15	\$7.25	\$29.75
Junior Engineer Tech	1 to 5	\$7.25	\$25.00
Senior CADD Operator	15+	\$7.25	\$31.81
CADD Operator	5 to 15	\$7.25	\$27.63
Junior CADD Operator	1 to 5	\$7.25	\$25.32
Admin/Clerical		\$7.25	\$23.00
INDIRECT COST RATE:	163.12%		
PROFIT RATE:	10.0%		
Actual rates to be billed not to exceed the maximum shown.			
Minimum rate to be billed if actual is less. Documentation of hours worked is necessary for reimbursement.			
Cost Plus Fixed Fee Payment Basis: Rates, within the ranges indicated, will be agreed upon for use in calculating the maximum amount not to exceed.			
Note: Any direct labor, unit cost, or other direct expense classification included in the contract, but not in a work authorization, is not eligible for payment under that work authorization.			

ATTACHMENT E- FEE SCHEDULE			
COST PLUS FIXED FEE PAYMENT BASIS			
SUBPROVIDER NAME:		AECOM Technical Services, Inc.	
DIRECT LABOR			
LABOR/STAFF CLASSIFICATION	YEARS OF EXPERIENCE	HOURLY RATE	
		MINIMUM	MAXIMUM
Project Manager	10 to 20	\$7.25	\$78.00
Quality Manager	10 to 20	\$7.25	\$79.00
Senior Engineer	15+	\$7.25	\$70.00
Project Engineer	10 to 15	\$7.25	\$53.00
Design Engineer	5 to 10	\$7.25	\$47.00
Engineer-In-Training	1 to 5	\$7.25	\$34.00
Senior Engineer Tech	15+	\$7.25	\$40.00
Engineer Tech	5 to 15	\$7.25	\$35.56
Junior Engineer Tech	1 to 5	\$7.25	\$27.00
Senior CADD Operator	15+	\$7.25	\$35.00
CADD Operator	5 to 15	\$7.25	\$29.00
Junior CADD Operator	1 to 5	\$7.25	\$25.32
Admin/Clerical		\$7.25	\$23.00
Senior Hydrologist	25+	\$7.25	\$82.00
INDIRECT COST RATE:	149.10%		
PROFIT RATE:	10.0%		
Actual rates to be billed not to exceed the maximum shown.			
Minimum rate to be billed if actual is less. Documentation of hours worked is necessary for reimbursement.			
Cost Plus Fixed Fee Payment Basis: Rates, within the ranges indicated, will be agreed upon for use in calculating the maximum amount not to exceed.			
Note: Any direct labor, unit cost, or other direct expense classification included in the contract, but not in a work authorization, is not eligible for payment under that work authorization.			

ATTACHMENT E- FEE SCHEDULE			
COST PLUS FIXED FEE PAYMENT BASIS			
SUBPROVIDER NAME:		I.S. Engineers, L.L.C.	
DIRECT LABOR			
LABOR/STAFF CLASSIFICATION	YEARS OF EXPERIENCE	HOURLY RATE	
		MINIMUM	MAXIMUM
Project Manager	10 to 20	\$7.25	\$72.12
Quality Manager	10 to 20	\$7.25	\$78.59
Senior Engineer	15+	\$7.25	\$67.31
Project Engineer	10 to 15	\$7.25	\$52.88
Design Engineer	5 to 10	\$7.25	\$40.63
Engineer-In-Training	1 to 5	\$7.25	\$31.05
Senior Engineer Tech	15+	\$7.25	\$36.86
Engineer Tech	5 to 15	\$7.25	\$31.00
Junior Engineer Tech	1 to 5	\$7.25	\$25.00
Senior CADD Operator	15+	\$7.25	\$31.81
CADD Operator	5 to 15	\$7.25	\$27.63
Junior CADD Operator	1 to 5	\$7.25	\$25.32
Admin/Clerical		\$7.25	\$25.00
INDIRECT COST RATE:	150.06%		
PROFIT RATE:	10.0%		
Actual rates to be billed not to exceed the maximum shown.			
Minimum rate to be billed if actual is less. Documentation of hours worked is necessary for reimbursement.			
Cost Plus Fixed Fee Payment Basis: Rates, within the ranges indicated, will be agreed upon for use in calculating the maximum amount not to exceed.			
Note: Any direct labor, unit cost, or other direct expense classification included in the contract, but not in a work authorization, is not eligible for payment under that work authorization.			

ATTACHMENT E- FEE SCHEDULE			
COST PLUS FIXED FEE PAYMENT BASIS			
SUBPROVIDER NAME:		Landtech Consultants, Inc.	
DIRECT LABOR			
LABOR/STAFF CLASSIFICATION	YEARS OF EXPERIENCE	HOURLY RATE	
		MINIMUM	MAXIMUM
Project Manager	10 to 20	\$7.25	\$75.00
Quality Manager	10 to 20	\$7.25	\$78.59
Senior Engineer	15+	\$7.25	\$68.00
Project Engineer	10 to 15	\$7.25	\$54.00
Design Engineer	5 to 10	\$7.25	\$45.00
Engineer-In-Training	1 to 5	\$7.25	\$31.05
Senior Engineer Tech	15+	\$7.25	\$41.00
Engineer Tech	5 to 15	\$7.25	\$29.75
Junior Engineer Tech	1 to 5	\$7.25	\$25.00
Senior CADD Operator	15+	\$7.25	\$34.00
CADD Operator	5 to 15	\$7.25	\$30.00
Junior CADD Operator	1 to 5	\$7.25	\$25.32
Admin/Clerical		\$7.25	\$22.28
INDIRECT COST RATE:	162.41%		
PROFIT RATE:	10.0%		

Actual rates to be billed not to exceed the maximum shown.

Minimum rate to be billed if actual is less. Documentation of hours worked is necessary for reimbursement.

**Cost Plus Fixed Fee Payment Basis:** Rates, within the ranges indicated, will be agreed upon for use in calculating the maximum amount not to exceed.

**Note:** Any direct labor, unit cost, or other direct expense classification included in the contract, but not in a work authorization, is not eligible for payment under that work authorization.

ATTACHMENT E - FEE SCHEDULE		
SPECIFIED RATE PAYMENT BASIS		
SUBPROVIDER NAME:		HVJ Associates, Inc.
DIRECT LABOR		
LABOR/STAFF CLASSIFICATION	YEARS OF EXPERIENCE	HOURLY CONTRACT RATE
Project Manager	10 to 20	\$215.17
Senior Engineer	15+	\$191.54
Project Engineer	10 to 15	\$146.52
Design Engineer	5 to 10	\$124.02
Engineer-In-Training	1 to 5	\$94.78
Senior Engineer Tech	15+	\$112.52
Engineer Tech	5 to 15	\$90.81
Junior Engineer Tech	1 to 5	\$76.31
Geologist	5 to 15	\$116.00
Admin/Clerical		\$68.01
Contract rates include labor, overhead, and profit.		
All rates are negotiated rates and are not subject to change or adjustment.		
<b>Specified Rate Payment Basis</b> - Contract rates to be billed. Documentation of hours must be maintained and is subject to audit.		
<b>Note:</b> Any direct labor, unit cost, or other direct expense classification included in the contract, but not in a work authorization, is not eligible for payment under that work authorization.		



ATTACHMENT E - FEE SCHEDULE		
SPECIFIED RATE PAYMENT BASIS		
SUBPROVIDER NAME:		Landtech Consultants, Inc.
DIRECT LABOR		
LABOR/STAFF CLASSIFICATION	YEARS OF EXPERIENCE	HOURLY CONTRACT RATE
RPLS - Project Manager	15+	\$140.00
Licensed State Land Surveyor	10+	\$118.35
RPLS - Task Leader	10 to 15	\$124.99
Senior Survey Tech (Must be Surveyor in Training (SIT), or have a minimum of five year's surveying experience)	5 to 10	\$83.42
Survey Tech	1 to 5	\$72.68
Senior GIS Operator		\$134.22
GIS Operator		\$90.43
GIS Technician		\$83.71
Admin/Clerical		\$64.31
Contract rates include labor, overhead, and profit.		
All rates are negotiated rates and are not subject to change or adjustment.		
<b>Specified Rate Payment Basis</b> - Contract rates to be billed. Documentation of hours must be maintained and is subject to audit.		
<b>Note:</b> Any direct labor, unit cost, or other direct expense classification included in the contract, but not in a work authorization, is not eligible for payment under that work authorization.		

ATTACHMENT E- FEE SCHEDULE			
LUMP SUM PAYMENT BASIS			
PRIME PROVIDER NAME:		Brown & Gay Engineers, Inc.	
DIRECT LABOR			
LABOR/STAFF CLASSIFICATION	YEARS OF EXPERIENCE	HOURLY BASE RATE	HOURLY CONTRACT RATE
Project Manager	10 to 20	\$73.43	\$212.53
Quality Manager	10 to 20	\$78.59	\$227.45
Senior Engineer	15+	\$66.00	\$191.03
Project Engineer	10 to 15	\$48.00	\$138.93
Design Engineer	5 to 10	\$40.63	\$117.58
Engineer-In-Training	1 to 5	\$31.05	\$89.88
Senior Engineer Tech	15+	\$38.00	\$109.98
Engineer Tech	5 to 15	\$29.75	\$86.11
Admin/Clerical		\$23.00	\$66.57
INDIRECT COST RATE:	163.12%		
PROFIT RATE:	10.0%		
Contract rates include labor, overhead, and profit.			
All rates are negotiated rates and are not subject to change or adjustment.			
Lump Sum Payment Basis - Invoice by deliverable, according to the table of deliverables.			
Documentation of hours worked not required.			
Note: Any direct labor, unit cost, or other direct expense classification included in the contract, but not in a work authorization, is not eligible for payment under that work authorization.			

**ATTACHMENT E- FEE SCHEDULE**  
**LUMP SUM PAYMENT BASIS**

**SUBPROVIDER NAME:** AECOM Technical Services, Inc.

**DIRECT LABOR**

LABOR/STAFF CLASSIFICATION	YEARS OF EXPERIENCE	HOURLY BASE RATE	HOURLY CONTRACT RATE
Project Manager	10 to 20	\$78.00	\$213.73
Senior Engineer	15+	\$70.00	\$191.81
Project Engineer	10 to 15	\$53.00	\$145.23
Design Engineer	5 to 10	\$47.00	\$128.78
Engineer-In-Training	1 to 5	\$34.00	\$93.16
Senior Engineer Tech	15+	\$40.00	\$109.60
Engineer Tech	5 to 15	\$35.56	\$97.44
Junior Engineer Tech	1 to 5	\$27.00	\$73.98
Senior CADD Operator	15+	\$37.00	\$101.38
CADD Operator	5 to 15	\$30.00	\$82.20
Junior CADD Operator	1 to 5	\$25.32	\$69.37
Admin/Clerical		\$23.00	\$63.02
Senior Hydrologist	25+	\$82.00	\$224.69
<b>INDIRECT COST RATE:</b>	<b>149.10%</b>		
<b>PROFIT RATE:</b>	<b>10.0%</b>		

Contract rates include labor, overhead, and profit.

All rates are negotiated rates and are not subject to change or adjustment.

**Lump Sum Payment Basis** - Invoice by deliverable, according to the table of deliverables. Documentation of hours worked not required.

**Note:** Any direct labor, unit cost, or other direct expense classification included in the contract, but not in a work authorization, is not eligible for payment under that work authorization.

ATTACHMENT E- FEE SCHEDULE			
LUMP SUM PAYMENT BASIS			
SUBPROVIDER NAME: I.S. Engineers, L.L.C.			
DIRECT LABOR			
LABOR/STAFF CLASSIFICATION	YEARS OF EXPERIENCE	HOURLY BASE RATE	HOURLY CONTRACT RATE
Project Manager	10 to 20	\$72.12	\$198.38
Senior Engineer	15+	\$63.00	\$173.29
Project Engineer	10 to 15	\$50.00	\$137.53
Design Engineer	5 to 10	\$40.63	\$111.75
Engineer-In-Training	1 to 5	\$31.05	\$85.41
Senior Engineer Tech	15+	\$36.86	\$101.39
Engineer Tech	5 to 15	\$30.00	\$82.52
Senior CADD Operator	15+	\$31.81	\$87.51
Admin/Clerical		\$23.00	\$63.27
INDIRECT COST RATE: 150.06%			
PROFIT RATE: 10.0%			
Contract rates include labor, overhead, and profit.			
All rates are negotiated rates and are not subject to change or adjustment.			
<b>Lump Sum Payment Basis</b> - Invoice by deliverable, according to the table of deliverables. Documentation of hours worked not required.			
<b>Note:</b> Any direct labor, unit cost, or other direct expense classification included in the contract, but not in a work authorization, is not eligible for payment under that work authorization.			

ATTACHMENT E- FEE SCHEDULE			
LUMP SUM PAYMENT BASIS			
SUBPROVIDER NAME: Landtech Consultants, Inc.			
DIRECT LABOR			
LABOR/STAFF CLASSIFICATION	YEARS OF EXPERIENCE	HOURLY BASE RATE	HOURLY CONTRACT RATE
Project Manager	10 to 20	\$75.00	\$216.49
Senior Engineer	15+	\$68.00	\$196.28
Project Engineer	10 to 15	\$54.00	\$155.87
Design Engineer	5 to 10	\$45.00	\$129.89
Engineer-In-Training	1 to 5	\$31.05	\$89.63
Senior Engineer Tech	15+	\$38.00	\$109.69
Engineer Tech	5 to 15	\$29.75	\$85.87
Junior Engineer Tech	1 to 5	\$25.00	\$72.16
Senior CADD Operator	15+	\$34.00	\$98.14
CADD Operator	5 to 15	\$30.00	\$86.60
Junior CADD Operator	1 to 5	\$25.32	\$73.07
Admin/Clerical		\$22.28	\$64.31
INDIRECT COST RATE: 162.41%			
PROFIT RATE: 10.0%			
Contract rates include labor, overhead, and profit.			
All rates are negotiated rates and are not subject to change or adjustment.			
<b>Lump Sum Payment Basis</b> - Invoice by deliverable, according to the table of deliverables. Documentation of hours worked not required.			
<b>Note:</b> Any direct labor, unit cost, or other direct expense classification included in the contract, but not in a work authorization, is not eligible for payment under that work authorization.			

**ATTACHMENT E- FEE SCHEDULE**

**UNIT COST PAYMENT BASIS**

**SUBPROVIDER NAME:** HVJ Associates, Inc.

SERVICES TO BE PROVIDED	Test Code	UNIT	COST
Volumetric Shrinkage	ASTM D427	each	\$65.00
Standard Proctor Test	ASTM D698	each	\$173.00
Modified Proctor Test	ASTM D1557	each	\$190.00
Standard Penetration Test (SPT)	ASTM D1586	LF	\$30.00
California Bearing Ratio (Single Sample without MD Curve)	ASTM D1883	test	\$300.00
Unconfined Compressive Strength (Soil)	ASTM D2166	each	\$48.00
Hydraulic Conductivity Permeability	ASTM D2434	each	\$220.00
One Dimensional Consolidation Properties of Soil	ASTM D2435	each	\$350.00
Unconfined Compressive Strength (Rock)	ASTM D2938	each	\$70.00
Direct Shear Test of Soils Under Consolidated Drained Conditions	ASTM D3080	set of 3	\$500.00
Splitting Tensile of Intact Rock Core	ASTM D3967	each	\$70.00
Water Stand Pipes	ASTM D4043	LF	\$23.00
Calcium Carbonate Content of Soils	ASTM D4373	each	\$35.00
Hydraulic Conductivity Permeability	ASTM D4511	each	\$225.00
One Dimensional Swell, Methods A & B	ASTM D4546	each	\$85.00
One Dimensional Swell, Method C	ASTM D4546	each	\$130.00
Permeability of Silt and Clays	ASTM D5084	each	\$290.00
Suction Test (Filter Method)	ASTM D5298	each	\$45.00
Casagrande Type Piezometers	N/A	each	\$300.00
Casagrande Type Piezometers Installation	N/A	each	\$350.00
Vertical Inclinator	N/A	each	\$450.00
Vertical Inclinator Installation	N/A	each	\$800.00
Vibrating Wire Piezometer	N/A	each	\$900.00
Vibrating Wire Piezometer Installation	N/A	each	\$1,000.00
Soil Boring with SPT	ASTM D1586	LF	\$26.00
Soil Boring/Rock Coring with TCP ( < 60 ft.)	Tex-132-E	LF	\$33.00
Soil Boring/Rock Coring with TCP ( > 60 ft.)	Tex-132-E	LF	\$37.00
Soil Boring/Rock Coring without TCP ( < 60 ft.)	N/A	LF	\$28.00
Soil Boring /Rock Coring without TCP ( > 60 ft.)	N/A	LF	\$30.00
Soil Boring without TCP ( < 60 ft.):			
(a) Utilizing Continuous Sampler	ASTM D1587	LF	\$26.00
(b) Shelby Push Tubes Extruded in Field	ASTM D1587	LF	\$26.00
(c) Augering	N/A	LF	\$21.00
Soil Boring without TCP ( > 60 ft.):			
(a) Utilizing Continuous Sampler	ASTM D1587	LF	\$28.00
(b) Shelby Push Tubes Extruded in Field	ASTM D1587	LF	\$29.00
Core/drill operator/technician and coring equipment used to drill flexible and rigid pavement (2-man crew)	N/A	Trip	\$350.00
(a) 4-in. diameter cores	N/A	Inch	\$8.00
(b) 6-in. diameter cores	N/A	Inch	\$10.00
(c) 4-in. diameter cores (greater 6-inch thickness)		Inch	\$11.00
(d) 6-in. diameter cores (greater than 6-inch thickness)		Inch	\$15.00
Mobilization of Drilling Rig (Trips less than 100 miles from office to site)	N/A	each	\$450.00
Mobilization of Drilling Rig (Trips over 100 miles from office to site)	N/A	mile	\$5.00
Surcharge for Drilling using Marsh Buggy		feet	\$6.00
Steel Manhole Cover for Piezometer		each	\$100.00
3 Man Crew (Driller, Logger & helper) travel to/from Job site per day		hour	\$160.00
Drilling Standby Time		hour	\$130.00
Traffic Signs		day	\$450.00
Crash Truck w/attenuator		day	\$550.00
Certified Flagman		hour	\$35.00
Dozer for Site Clearing for Soil Boring Access		day	\$1,400.00
Determination of Moisture Content in soils	ASTM D2216	test	\$8.00
Liquid Limit of Soils	ASTM D4318	test	\$29.00
Plastic Limit of Soils	ASTM D4318	test	\$29.00
Specific Gravity of Soils	ASTM D 854	each	\$55.00
Sieve Analysis	ASTM D 422	each	\$55.00

## ATTACHMENT E- FEE SCHEDULE

### UNIT COST PAYMENT BASIS

**SUBPROVIDER NAME:** HVJ Associates, Inc.

SERVICES TO BE PROVIDED	Test Code	UNIT	COST
Sieve Analysis w/Hydrometer	ASTM D 422	each	\$125.00
Percent Passing # 200 sieve	ASTM D 1140	each	\$45.00
Soil Cement Testing	Tex-120-E	test	\$280.00
Soil Lime Testing	Tex-121-E	test	\$280.00
Slurry Testing	Tex-130-E	test	\$35.00
Unconsolidated Undrained Triaxial Compressive Strength of Soil	ASTM D 2850	each	\$63.00
Consolidated Undrained Triaxial Compression Test (3 Specimens)		set of 3	\$1,200.00
Standard Proctor Test, Treated	ASTM D 698	set of 3	\$200.00
Modified Proctor Test, Treated	ASTM D 1557	set of 3	\$210.00
Density of Undisturbed Soil Specimen	ASTM D 2166	test	\$28.00
Bar linear Shrinkage for soils	Tex-107-E	each	\$35.00
Pinhole	ASTM D 4647	each	\$255.00
Crumb	ASTM D 6572	each	\$38.00
Double Hydrometer	ASTM D 422-1	each	\$177.00

The unit costs shown include labor, overhead, and profit. Payment based on units completed. No partial payments.

All unit costs are negotiated costs and are not subject to change or adjustment.

**Unit Cost Payment Basis:** If unit costs by year are included, unit costs billed should correspond to the fiscal or calendar year, if applicable, in which the work was done.

**Note:** Any direct labor, unit cost, or other direct expense classification included in the contract, but not in a work authorization, is not eligible for payment under that work authorization.

ATTACHMENT E- FEE SCHEDULE		
UNIT COST PAYMENT BASIS		
SUBPROVIDER NAME:		Landtech Consultants, Inc.
SERVICES TO BE PROVIDED	UNIT	COST
1 - Person Survey Crew (GPS and Robotic Total Stations included in indirect cost rate. Mileage not included.)	hour	\$95.00
2 - Person Survey Crew (GPS and Robotic Total Stations included in indirect cost rate. Mileage not included.)	hour	\$137.00
3 - Person Survey Crew (GPS and Robotic Total Stations included in indirect cost rate. Mileage not included.)	hour	\$165.00
4 - Person Survey Crew (GPS and Robotic Total Stations included in indirect cost rate. Mileage not included.)	hour	\$195.00
<p>The unit costs shown include labor, overhead, and profit. Payment based on units completed. No partial payments.</p> <p>All unit costs are negotiated costs and are not subject to change or adjustment.</p> <p><b>Unit Cost Payment Basis:</b> If unit costs by year are included, unit costs billed should correspond to the fiscal or calendar year, if applicable, in which the work was done.</p> <p><b>Note:</b> Any direct labor, unit cost, or other direct expense classification included in the contract, but not in a work authorization, is not eligible for payment under that work authorization.</p>		



## ATTACHMENT E- FEE SCHEDULE

### OTHER DIRECT EXPENSES

RATES SHOWN APPLY TO PRIME PROVIDER AND ALL SUBPROVIDERS

SERVICES TO BE PROVIDED	UNIT	FIXED COST	MAXIMUM COST
Lodging/Hotel - Taxes and Fees	day/person		\$25.00
Lodging/Hotel (Taxes/fees not included)	day/person		Current State Rate
Meals (Excluding alcohol & tips) (Overnight stay required)	day/person		Current State Rate
Mileage	mile	Current State Rate	
Rental Car Fuel	day		\$25.00
SUV or ATV Rental (Includes taxes and fees; Insurance costs will not be reimbursed)	day		\$100.00
Rental Car Fuel	gallon		\$3.75
Rental Car (Includes taxes and fees; Insurance costs will not be reimbursed)	day		\$65.00
Air Travel - In State - Short Notice (Coach)	Rd Trip/person		\$500.00
Air Travel - In State - 2+ Wks Notice (Coach)	Rd Trip/person		\$350.00
Air Travel - Out of State - 2+ Wks Notice (Coach)	Rd Trip/person		\$400.00
Air Travel - Out of State - Short Notice (Coach)	Rd Trip/person		\$600.00
Oversize, special handling or extra baggage airline fees (with advance coordination with TxDOT)	each		\$100.00
Taxi/Cab fare	each/person		\$20.00
Parking	day		\$15.00
Toll Charges	each		\$2.00
Standard Postage	letter	Current Postal Rate	
Certified Letter Return Receipt	each	Current Postal Rate	
Overnight Mail - letter size	each		Current Postal Rate
Overnight Mail - oversized box	each		\$30.00
Materials and Shipping	per package		\$25.00
Courier Services	each		\$30.00
Photocopies B/W (11" X 17")	each	\$0.20	
Photocopies B/W (8 1/2" X 11")	each	\$0.10	
Photocopies Color (11" X 17")	each	\$1.25	
Photocopies Color (8 1/2" X 11")	each	\$0.75	
Digital Ortho Plotting	sheet	\$1.25	
Plots (B/W on Bond)	per sq. ft.	\$0.50	
Plots (Color on Bond)	per sq. ft.	\$1.00	
Plots (Color on Photographic Paper)	per sq. ft.	\$4.00	
Color Graphics on Foam Board	square foot	\$4.00	
Presentation Boards 30" X 40" Color Mounted	each		\$60.66
Report Printing	each		\$25.00
Report Binding and tabbing	each	\$4.25	
Reproduction of CD/DVD	each		\$3.00
CDs	each	\$1.00	
4" X 6" Digital Color Print	picture	\$0.25	
Tx Parks & Wildlife Data Request Fees	each		\$40.00
Hazardous Materials Database Search	per search		\$300.00
Noise Meter Rental	per project		\$57.50
Environmental Field Supplies (lathes, stakes, flagging, spray paint, etc.)	day		\$30.00
Curator (Drawer & Tx Archaeological Research Lab for artifacts & report)	per project		\$750.00
Court Reporter	page		\$4.00
Court Reporter (Public Meetings, Hearings & Transcription)	day		\$500.00
Translator (English to Spanish, other language as appropriate, or Sign Language)	hour		\$100.00
Custodian for Public Involvement	hour/custodian		\$25.00
Sound Technician for Public Involvement	event		\$250.00
Public Involvement Facility Rental (estimate)	4 hours		\$750.00

ATTACHMENT E- FEE SCHEDULE			
OTHER DIRECT EXPENSES			
RATES SHOWN APPLY TO PRIME PROVIDER AND ALL SUBPROVIDERS			
SERVICES TO BE PROVIDED	UNIT	FIXED COST	MAXIMUM COST
Public involvement Facility Rental (estimate)	8 hours		\$3,000.00
Public Involvement Facility Rental (estimate)	hour		\$150.00
Public Involvement Facility Rental	event		\$800.00
Audio - Equipment Rental	each		\$150.00
Audio - Visual Equipment Rental	event		\$250.00
Public Notices - Mass Mailing (500 pieces)	per mailing		\$400.00
FEMA FIS (Manual)	each		\$5.00
FEMA FIS Backup Data Request	each		\$300.00
FEMA Map Revision Submittal (CLOMR/LOMR) (Submittal Fee Only)	each		\$5,000.00
FEMA Model/Floodplain Hardcopy	each		\$250.00
Railroad - Flagger (Service provided by RR)	hour		\$60.00
Railroad - Permit (Note: Read and then delete this note. Most railroad companies charge a fee of \$500 for the permit to access their property.)	each		\$650.00
Railroad - Safety Training (If required - Heavy Rail Safety Training Certificate, includes classroom training and employee certification card.)	Per Person		\$250.00
Traffic Control Services, Arrow Boards and Attenuator trucks - Large Project (Includes labor, equipment and fuel)	day		\$2,700.00
Traffic Control Services, Arrow Boards and Attenuator trucks - Medium Project (Includes labor, equipment and fuel)	day		\$2,100.00
Traffic Control Services, Arrow Boards and Attenuator trucks - Small Project (Includes labor, equipment and fuel)	day		\$1,400.00
Attenuator trucks - (Lane/Shoulder Closure) (Includes labor, equipment and fuel)	day		\$400.00
Attenuator trucks - (No Lane Closure) (Includes labor, equipment and fuel)	day		\$250.00
Flashing Arrow Board	day		\$400.00
Portable Message Board	day		\$200.00
Law Enforcement/Uniform Officer (including vehicle)	hour		\$60.00
Required Permit Fees (non- railroad)	each		\$250.00
Boat with Motor	day		\$200.00
Fathometer	day		\$90.00
Backhoe Rental	day		\$1,100.00
Map, Tapes, and Supplies	each	\$3.50	
Rental Equipment - Gasoline Powered Auger	day		\$65.00
Cellular Telephone & Data Plan	each/month		\$50.00
Wireless Router/Server	month		\$30.00
Laptop Computer/iPad and data plan	each/month		\$45.00
Desktop & Microcomputer w/Plotter-each/month	sheet		\$32.50
Mobilization/Demobilization Laboratory	each		\$2,050.00
AASHTO Accreditation Aggregates Laboratory	each		\$6,600.00
AASHTO Accreditation Hot Mix Laboratory	each		\$7,600.00
AASHTO Accreditation Soil Laboratory	each		\$6,600.00
CCRL Accreditation	each		\$11,200.00
Rolling Measuring Wheel	day		\$5.00
Equipment Calibration	each		\$1,050.00
Office Trailer Rental	each		\$525.00
GPS Receiver (rates applied to actual time GPS units are in use)	hour	\$20.00	
GPS RTK (rates applied to actual time GPS units are in use)	hour	\$25.00	
GPS Static (rates applied to actual time GPS units are in use)	hour	\$25.00	
Map Records	sheet		\$2.00
Deed Copies	sheet	\$1.00	

## ATTACHMENT E- FEE SCHEDULE

### OTHER DIRECT EXPENSES

**RATES SHOWN APPLY TO PRIME PROVIDER AND ALL SUBPROVIDERS**

SERVICES TO BE PROVIDED	UNIT	FIXED COST	MAXIMUM COST
Certified Deed Copies	sheet	\$2.50	
Historical Aerial Images	unit		\$100.00
Aerial Photographs (1" = 500' scale)	each		\$35.00
Type II ROW Monument - Excavated/Drilled, rocks, rocky soil. 2-4 inch depth (includes crew time, equipment, materials, rentals, & labor). Brass Marker supplied by TxDOT	each	\$60.00	
Type II ROW Monument - Poured 2-3 Feet (includes One Call, crew time, equipment, materials, rentals, labor). Brass Marker supplied by TxDOT	each	\$190.00	
Reprographics	per sq. ft.	\$3.00	
Terrestrial Laser Scanner (rates applied to actual time scanner unit is in use)	hour	\$80.00	
Ground Target (includes paint, panel material, etc.)	each	\$15.00	
Ground Penetrating Radar (equipment only)	day	\$126.25	
Helicopter Equipment LiDAR - Project Flight Miles (On project flight miles)	per mile	\$60.00	
Helicopter Equipment LiDAR - Transit Miles (including turn, maneuver miles and local airport to project)	per mile	\$15.00	
Fixed Wing Airborne LiDAR - Project Flight Miles (On project flight miles)	per mile	\$22.00	
Fixed Wing Airborne LiDAR - Transit Miles (including turn, maneuver miles and local airport to project)	per mile	\$8.00	
Aerial Photography - Airborne GPS/IMU Data collection/Processing	Per Project	\$2,200.00	
Aerial Photography - Project Flight Miles (On project flight miles)	Per Mile	\$28.00	
Aerial Photography - Transit miles (including turn, maneuver miles and local airport to project)	Per Mile	\$7.00	
Photo Lab Service - Black and White Processing (film, development, scanning)	Per Frame	\$15.00	
Photo Lab Service - Color Infrared Processing (film, development, scanning)	Per Frame	\$22.88	
Photo Lab Service - Color Processing (film, development, scanning)	Per Frame	\$25.00	
Photo Lab Service - Digital image processing	Per Frame	\$20.00	
Photo Lab Service - Enlargements, Lamination, Mounting	per sq. ft.	\$3.13	

**Profit not allowed on Other Direct Expenses.**

**For Cost Plus Fixed Fee, Specified Rate, and Unit Cost** - Fixed cost items to be billed at the fixed cost rate. Documentation, such as a usage log, must be maintained for audit purposes, and may be required to be submitted as a basis for reimbursement. For items with a maximum cost, actual cost to be billed not to exceed the maximum shown. Itemized receipts must be maintained for audit purposes, and may be required to be submitted as a basis for reimbursement. **For Lump Sum** - No documentation required. Invoicing by physical percent complete includes combination of direct labor and other direct expenses.

**NOTE: For Cost Plus Fixed Fee, Specified Rate, and Unit Cost** - Miscellaneous other direct expenses up to \$100 per unit will be reimbursed at cost if approved and documented in advance by the State's Project Manager. Miscellaneous other direct expenses of \$100 per unit or more will not be reimbursed unless a supplemental agreement to the contract and work authorization (if WAs are used) has been executed in advance authorizing the miscellaneous other direct expenses. No more than \$2,500 in miscellaneous other direct expenses may be approved by the State's Project Manager over the life of this contract including prime provider and subproviders. **For Lump Sum** - This statement does not apply.

Prime Provider: Brown & Gay Engineers, Project: SH 36 (Segment 9)		SUBTOTALS	Prime Provider - BGE	HVJ	Landtech Consultants	Landtech (Survey)	AECOM	IS Engineers
FC 102 (110)	Total Labor Cost	\$63,869.17	\$22,459.60	\$22,639.95	\$14,516.76			\$4,252.86
	Other Direct Expenses	\$74,041.50	\$2,289.00	\$69,946.00	\$1,056.50			\$750.00
FC 120 (120)	Total Labor Cost	\$19,899.60	\$19,899.60					
	Other Direct Expenses	\$0.00						
FC 130 (130) Right-of-Way	Total Labor Cost	\$103,859.22	\$3,738.70		\$100,120.52			
	Other Direct Expenses	\$0.00						
FC 145 (164)	Total Labor Cost	\$207,986.52	\$155,557.08		\$43,063.08			\$9,366.36
	Other Direct Expenses	\$0.00						
FC 145 (164) CPS	Direct Labor Cost	\$7,134.36	\$7,134.36					
	Fixed Fee/Profit	\$713.44	\$713.44					
	Other Direct Expense	\$0.00						
FC 160 (150)	Total Labor Cost	\$226,575.57				\$226,575.57		
	Other Direct Expenses	\$6,376.32				\$6,376.32		
FC 160 (160)	Total Labor Cost	\$287,359.11	\$252,731.83					\$34,627.28
	Other Direct Expenses	\$0.00						
FC 160 (161)	Total Labor Cost	\$571,572.12	\$288,611.79				\$282,960.33	
	Other Direct Expenses	\$1,080.00					\$1,080.00	
FC 160 (162)	Total Labor Cost	\$224,222.47	\$124,668.81		\$99,553.66			
	Other Direct Expenses	\$0.00						
FC 160 (163)	Total Labor Cost	\$412,376.55	\$362,991.42		\$18,016.32			\$31,368.81
	Other Direct Expenses	\$0.00						
FC 160 (163) ROW Testimony-CPS	Direct Labor Cost	\$97,109.33	\$97,109.33					
	Fixed Fee/Profit	\$9,710.93	\$9,710.93					
	Other Direct Expense	\$0.00						
FC 160 (165)	Total Labor Cost	\$125,260.54	\$125,260.54					
	Other Direct Expenses	\$0.00						
FC 309 (309) CPS	Direct Labor Cost	\$90,980.45	\$90,980.45					
	Fixed Fee/Profit	\$9,098.05	\$9,098.05					
	Other Direct Expense	\$0.00						
Grand Totals		\$2,539,225.25	\$1,572,954.93	\$92,585.95	\$276,326.84	\$232,951.89	\$284,040.33	\$80,365.31
(HUB%)		23.70%		3.65%	10.88%	9.17%		

TASK DESCRIPTION	PROJECT MANAGER	QUALITY MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	ENGINEERING TECHNICIAN	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
FC 102(110) - ROUTE AND DESIGN STUDIES												
DATA COLLECTION & FIELD RECONNAISSANCE	4		12	24		24				64	N/A	N/A
ROADWAY AND HYDRAULIC DESIGN CRITERIA	1	2	4	8		4				19	N/A	N/A
PRELIMINARY COST ESTIMATE	1		4	8		8				21	N/A	N/A
DESIGN CONCEPT CONFERENCE	4		4	12		12			4	36	N/A	N/A
REVIEW GEOTECHNICAL REPORT	2		4	4						10	N/A	N/A
FLOOD PLAIN INFORMATION & STUDIES	2		4	4						10		
DESIGN EXCEPTIONS, IF APPLICABLE										0		
HOURS SUB-TOTALS	14	2	32	60	0	48	0	0	4	160		
CONTRACT RATE PER HOUR	\$212.53	\$227.45	\$191.03	\$138.93	\$117.58	\$89.88	\$109.98	\$86.11	\$66.57			
TOTAL LABOR COSTS	\$2,975.42	\$454.90	\$6,112.96	\$8,335.80	\$0.00	\$4,314.24	\$0.00	\$0.00	\$266.28	\$22,459.60		
% DISTRIBUTION OF STAFFING	8.8%	1.3%	20.0%	37.5%	0.0%	30.0%	0.0%	0.0%	2.5%			
SUBTOTAL - FC 102 (110)										\$22,459.60		

TASK DESCRIPTION	PROJECT MANAGER	QUALITY MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	ENGINEERING TECHNICIAN	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
FC 120(120) – SOCIAL, ECONOMIC AND ENVIRONMENTAL STUDIES AND PUBLIC INVOLVEMENT												
INFORMAL MEETINGS WITH PUBLIC, OTHER AGENCIES, STAKEHOLDERS												
MEETING WITH STAKE HOLDER AND PREPARATION OF EXHIBITS (3)	8		8	24		8	12	8	4	72	N/A	N/A
PUBLIC MEETING AND PREPARATION OF EXHIBITS (1)	4		8	8		4	8		4	36	N/A	N/A
EPIC SHEETS	1	1		4		12				18	N/A	N/A
REVIEW OF ENVIRONMENTAL STUDY	2		12	4						18	N/A	N/A
HOURS SUB-TOTALS	15	1	28	40	0	24	20	8	8	144	0	
CONTRACT RATE PER HOUR (INCLUDE AVG HOURLY RATE TIME OVERHEAD AND FF)	\$212.53	\$227.45	\$191.03	\$138.93	\$117.58	\$89.88	\$109.98	\$86.11	\$66.57			
TOTAL LABOR COSTS	\$3,187.95	\$227.45	\$5,348.84	\$5,557.20	\$0.00	\$2,157.12	\$2,199.60	\$688.88	\$532.56	\$19,899.60		
% DISTRIBUTION OF STAFFING	10.42%	0.69%	19.44%	27.78%	0.00%	16.67%	13.89%	5.56%	5.56%			
SUBTOTAL - FC 120 (120)										\$19,899.60		



TASK DESCRIPTION	PROJECT MANAGER	QUALITY MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	ENGINEERING TECHNICIAN	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
FC 130 (130) - RIGHT OF WAY DATA												
REVIEW ROW MAPPING	2		4	8		16				30	N/A	N/A
UTILITY ADJUSTMENTS COORDINATION												
WORK PLAN					To be Completed by LandTech					0	N/A	N/A
ORIENTATION					To be Completed by LandTech					0	N/A	N/A
INITIAL PROJECT MEETING					To be Completed by LandTech					0	N/A	N/A
EXTERNAL COMMUNICATIONS					To be Completed by LandTech					0	N/A	N/A
PERMITS AND RIGHTS OF ENTRY					To be Completed by LandTech					0	N/A	N/A
PROGRESS MEETINGS					To be Completed by LandTech					0	N/A	N/A
COORDINATION WITH LOCAL UTILITY COMMITTEES					To be Completed by LandTech					0	N/A	N/A
INITIAL PROJECT NOTIFICATION LETTERS					To be Completed by LandTech					0	N/A	N/A
UTILITY CONTACT LIST					To be Completed by LandTech					0	N/A	N/A
UTILITY EXHIBITS FOR MARK UP					To be Completed by LandTech					0	N/A	N/A
HOUSTON DISTRICT UTILITY COOPERATIVE PROCESS (30%, 60% and 90% MEETINGS)					To be Completed by LandTech					0	N/A	N/A
UTILITY CONFLICT LIST					To be Completed by LandTech					0	N/A	N/A
ACCESS MANAGEMENT (EVALUATION & COORDINATION)					To be Completed by LandTech					0	N/A	N/A
UTILITY LAYOUTS					To be Completed by LandTech					0	16	0
UTILITY CROSSING PLAN AND PROFILES					To be Completed by LandTech					0	4	0
HOURS SUB-TOTALS	2	0	4	8	0	16	0	0	0	30	0	
CONTRACT RATE PER HOUR (INCLUDE AVG HOURLY RATE TIME OVERHEAD AND FF)	\$212.53	\$227.45	\$191.03	\$138.93	\$117.58	\$89.88	\$109.98	\$86.11	\$66.57			
TOTAL LABOR COSTS	\$425.06	\$0.00	\$764.12	\$1,111.44	\$0.00	\$1,438.08	\$0.00	\$0.00	\$0.00	\$3,738.70		
% DISTRIBUTION OF STAFFING	6.67%	0.00%	13.33%	26.67%	0.00%	53.33%	0.00%	0.00%	0.00%			
SUBTOTAL - FC 130 (130)										\$3,738.70		

TASK DESCRIPTION	PROJECT MANAGER	QUALITY MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	ENGINEERING TECHNICIAN	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
FC 145 (164) – PROJECT MANAGEMENT AND ADMINISTRATION												
PROJECT MANAGEMENT & COORDINATION WITH SUBCONSULTANTS	240		80	120					40	480	N/A	N/A
MAINTAIN PROJECT SCHEDULE	40		40	80						160	N/A	N/A
PROGRESS MEETINGS	48		0	48						96	N/A	N/A
WRITTEN AND ELECTRONIC CORRESPONDENCE	40			8					40	88	N/A	N/A
PREPARE AND DISTRIBUTE MEETING MINUTES	8			8					12	28	N/A	N/A
DOCUMENT PHONE AND CONFERENCE CALLS	8			40					40	88	N/A	N/A
HOURS SUB-TOTALS	384	0	120	304	0	0	0	0	132	940		
CONTRACT RATE PER HOUR (INCLUDE AVG HOURLY RATE TIME OVERHEAD AND FF)	\$212.53	\$227.45	\$191.03	\$138.93	\$117.58	\$89.88	\$109.98	\$86.11	\$66.57			
TOTAL LABOR COSTS	\$81,611.52	\$0.00	\$22,923.60	\$42,234.72	\$0.00	\$0.00	\$0.00	\$0.00	\$8,787.24	\$155,557.08		
% DISTRIBUTION OF STAFFING	40.85%	0.00%	12.77%	32.34%	0.00%	0.00%	0.00%	0.00%	14.04%			
SUBTOTAL - FC 145 (164)										\$155,557.08		



TASK DESCRIPTION	PROJECT MANAGER	QUALITY MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	ENGINEERING TECHNICIAN	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
FC 160 (160) – ROADWAY DESIGN CONTROLS												
ROADWAY DESIGN:												
TITLE SHEET	2	2		2		4	8	8		26	1	26
INDEX SHEET	2	2		2		4	8	8		26	1	26
HORIZONTAL AND VERTICAL ALIGNMENT DATA SHEETS	2	1		4		8	16	16		47	6	8
PROPOSED TYPICAL SECTIONS	4	8			To be Completed by IS ENGINEERS					12	N/A	N/A
EXISTING TYPICAL SECTIONS	4	4			To be Completed by IS ENGINEERS					8	N/A	N/A
ROADWAY PLAN AND PROFILE (SCALE: H 1"=100' V 1"=10')	20	20	60	140	80	120	280	240		960	30	32
CROSS STREET ROADWAY PLAN AND PROFILE (SCALE: H 1"=100' V 1"=10)	2	2	4	12		40	20	20		100	3	33
INTERSECTION LAYOUTS & GRADING	4	4	16	24		40	80	100		268	12	22
MISCELLANEOUS ROADWAY DETAILS	2	4		8		24	8	20		66	2	33
PAVEMENT REMOVAL PLANS (IF NECESSARY)	2	4			To be Completed by IS ENGINEERS					6	N/A	N/A
EARTHWORK CROSS SECTIONS	2	4	48	160		280				494	169	3
ROADWAY QUANTITY SHEETS	2	8	8	16		60	40			134	4	34
DETERMINATION OF DESIGN EXCEPTIONS/WAIVERS	4		8	8						20	N/A	N/A
HOURS SUB-TOTALS	52	63	144	376	80	580	460	412	0	2167	228	
CONTRACT RATE PER HOUR (INCLUDE AVG HOURLY RATE TIME OVERHEAD AND FF)	\$212.53	\$227.45	\$191.03	\$138.93	\$117.58	\$89.88	\$109.98	\$86.11	\$66.57			
TOTAL LABOR COSTS	\$11,051.56	\$14,329.35	\$27,508.32	\$52,237.68	\$9,406.40	\$52,130.40	\$50,590.80	\$35,477.32	\$0.00	\$252,731.83		
% DISTRIBUTION OF STAFFING	2.40%	2.91%	6.65%	17.35%	3.69%	26.77%	21.23%	19.01%	0.00%			
SUBTOTAL - FC 160 (160)										\$252,731.83		



TASK DESCRIPTION	PROJECT MANAGER	QUALITY MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	ENGINEERING TECHNICIAN	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
FC 160 (161) - DRAINAGE												
DRAINAGE IMPACT STUDY	20	8	40		To be Completed by AECOM					68	N/A	N/A
DRAINAGE AREA MAPS												
OVERALL DRAINAGE AREA MAP	2	2		12		14	12			42	2	21
ROADWAY DRAINAGE AREA MAPS	2	2	2	40	114	140	120			420	21	20
RAINFALL RUNOFF CALCULATION SHEETS	2	4				10	12			28	3	9
HYDRAULIC ANALYSIS (STORM SEWERS)	2	2		30		27	9			70	N/A	N/A
HYDRAULIC DATA SHEETS (STORM SEWERS)	4	8		8		44	40			104	9	12
HYDRAULIC ANALYSIS (DITCHES)	2	4		24		27	44			101	N/A	N/A
HYDRAULIC ANALYSIS (9 CULVERTS)	2	2	12	32	80	80				208	N/A	N/A
HYDRAULIC DATA SHEET (CULVERTS 1, 4, 5 & 6)	2	1		16		10	12			41	1	41
CULVERT AND STORM DRAIN DESIGN												
DRAINAGE PLAN AND PROFILES (STORM SEWER AND DITCHES)	24	8	24	60	84	160	200			560	29	19
LATERAL SHEETS (STORM SEWER)	2	4	2	6		16	23			53	2	27
DRAINAGE SUMMARY SHEETS	1	1	1	4		29	4			40	1	40
CULVERT LAYOUTS AND SECTIONS												
STANDARD CULVERT (4 TOTAL)	1	1	1	3		50	84			140	4	35
BRIDGE CLASS CULVERT (5 TOTAL)	1	1	4	24		70	100			200	5	40
BRIDGE CLASS CULVERT HYDRAULIC DATA SHEETS (CULVERTS 2, 3, 7, 8, & 9)	2	2	8	24		50	114			200	10	20
BOX CULVERT SUPPLEMENT SHEET (BCS)	2	2	1			8	2			15	1	15
DRAINAGE DETAILS	2	2	12	12		12	23			63	1	63
STANDARD DETAILS	2		2			16	11			31	35	1
FLOOD PLAIN CUT & FILL						Not in Scope				0		
LAYOUT, STRUCTURAL DESIGN & DETAILING, IF APPLICABLE:												
DETENTION POND LAYOUTS & DETAILS (IF APPLICABLE)	2	2	4	8		12	16			44	1	44
STORM WATER POLLUTION PREVENTION PLAN (SW3P):												
STORM WATER POLLUTION PREVENTION PLAN	4	4			To be Completed by IS ENGINEERS					8	16	1
STORM WATER POLLUTION PREVENTION PLAN STANDARDS					To be Completed by IS ENGINEERS					0	4	0
STORM WATER POLLUTION PREVENTION PLAN SUMMARIES	2	2			To be Completed by IS ENGINEERS					4	1	4
HOURS SUB-TOTALS	83	62	113	303	278	775	826	0	0	2,440	146	
CONTRACT RATE PER HOUR (INCLUDE AVG HOURLY RATE TIME OVERHEAD AND FF)	\$212.53	\$227.45	\$191.03	\$138.93	\$117.58	\$89.88	\$109.98	\$86.11	\$66.57			
TOTAL LABOR COSTS	\$17,639.99	\$14,101.90	\$21,586.39	\$42,095.79	\$32,687.24	\$69,657.00	\$90,843.48	\$0.00	\$0.00	\$288,611.79		
% DISTRIBUTION OF STAFFING	3.40%	2.54%	4.63%	12.42%	11.39%	31.76%	33.85%	0.00%	0.00%			
SUBTOTAL - FC 160 (161)										\$288,611.79		



TASK DESCRIPTION	PROJECT MANAGER	QUALITY MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	ENGINEERING TECHNICIAN	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
FC 160 (162) – SIGNING, PAVEMENT MARKINGS AND SIGNALIZATION (PERMANENT)												
SIGNING AND PAVEMENT MARKING LAYOUTS	8	16			To be Completed by LandTech					24	N/A	N/A
SIGNING SUMMARIES (LARGE AND SMALL)	2	4			To be Completed by LandTech					6	N/A	N/A
SIGNING, PAVEMENT MARKING, ETC. QUANTITIES	2	4			To be Completed by LandTech					6	N/A	N/A
TRAFFIC WARRANT STUDIES INCLUDES TRAFFIC COUNTS (LIST LOCATION(S))												
SH 36 at FM 442	4		24			24		16		68	N/A	N/A
SH 36 at FRITZELLA STREET	4		24			24		16		68	N/A	N/A
SH 36 at FM 1994	4		24			24		16		68	N/A	N/A
TRAFFIC SIGNALS (PERMANENT) LIST LOCATION(S)												
TRAFFIC SIGNAL PLANS ( EXIST. COND/PROP. LAYOUTS, WIRING &PHASING)												
SH 36 at FM 442	4	2	20			40	72	32		170	3	57
SH 36 at FRITZELLA STREET	4	2	20			40	72	32		170	3	57
SH 36 at FM 1994	4	2	20			40	72	32		170	4	43
TRAFFIC SIGNAL GENERAL NOTES AND BASIS OF ESTIMATE	3	2	16			16	8			45	N/A	N/A
TRAFFIC SIGNALS PLANS (TEMPORARY) LIST LOCATION(S)												
SH 36 at FM 442	2	2	8			20	30	10		72	3	24
SH 36 at FRITZELLA STREET	2	2	8			20	30	10		72	3	24
SH 36 at FM 1994	2	2	8			20	30	10		72	3	24
HOURS SUB-TOTALS	45	38	172	0	0	268	314	174	0	1011	19	
CONTRACT RATE PER HOUR (INCLUDE AVG HOURLY RATE TIME OVERHEAD AND FF)	\$212.53	\$227.45	\$191.03	\$138.93	\$117.58	\$89.88	\$109.98	\$86.11	\$66.57			
TOTAL LABOR COSTS	\$9,563.85	\$8,643.10	\$32,857.16	\$0.00	\$0.00	\$24,087.84	\$34,533.72	\$14,983.14	\$0.00	\$124,668.81		
% DISTRIBUTION OF STAFFING	4.45%	3.76%	17.01%	0.00%	0.00%	26.51%	31.06%	17.21%	0.00%			
SUBTOTAL - FC 160 (162)										\$124,668.81		



TASK DESCRIPTION	PROJECT MANAGER	QUALITY MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	ENGINEERING TECHNICIAN	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
FC 160 (163) - MISCELLANEOUS (ROADWAY)												
TRAFFIC CONTROL PLAN, DETOURS & SEQUENCE OF CONSTRUCTION:												
OVERALL PHASING LAYOUT (1"=400')	4	8	4	16		16	24	16		88	4	22
TCP, DETOURS AND SEQUENCE OF CONSTRUCTION (1"=100')	40	40	72	160		420	640	300		1672	42	40
ADVANCE SIGNING LAYOUTS	2	2		8		16	24	8		60	2	30
INTERSECTION LAYOUTS (3 LOCATIONS)	4	8	12	20		36	40			120	3	40
TYPICAL SECTIONS	4	8	12	24		60	60	60		228	8	29
TCP DETAILS	2	4	4	8		24	40			82	2	41
TCP STANDARDS	2		4	8		16	16	8		54		#DIV/0!
TEMPORARY DRAINAGE	2	4	8	20		36	20	20		110		#DIV/0!
TRAFFIC CONTROL WORKSHOP	4		4	8		12	16	12		56	N/A	N/A
DESIGN SCHEDULE	8		12	24		12				56	N/A	N/A
QUANTITIES, SPECIFICATIONS & ESTIMATE:												
ROADWAY QUANTITY SHEETS	2			12		24	8	8		54		#DIV/0!
COMPUTE & TABULATE TCP QUANTITIES	2			12		24	8	8		54	N/A	N/A
COMPUTE & TABULATE REMOVAL QUANTITIES	2	4			To be Completed by IS ENGINEERS					6	N/A	N/A
RETAINING WALL SUMMARIES						Not in Scope				0		#DIV/0!
SUMMARY SHEETS FOR DRIVEWAY, MISCELLANEOUS QUANTITIES, ETC.	2	4		12		24	16	16		74	2	37
GENERAL NOTES, SPECIFICATIONS AND PROVISIONS	4	4	8	24		20				60	N/A	N/A
CONSTRUCTION TIME DETERMINATION (PRIMAVERA)	4	4		40		24				72	N/A	N/A
CONSTRUCTION COST EST. (30, 60, 90, 95 & FINAL) WITH VARIANCE REPORT	8	4	4	20		40				76	N/A	N/A
MISCELLANEOUS DRAFTING/STANDARDS	2		2	8		12	16	12		52	50	1
PREPARE SUBMITALS (30%, 60% 90%, 95% and 100%)	16			40		40	40		20	156	N/A	N/A
PERMIT REVIEW FOR DRIVEWAYS, RDWY TIE-INS OR MODS WITHIN AREA										0	N/A	N/A
	114	94	146	464	0	856	968	468	20	3130	113	
CONTRACT RATE PER HOUR (INCLUDE AVG HOURLY RATE TIME OVERHEAD AND FF)	\$212.53	\$227.45	\$191.03	\$138.93	\$117.58	\$89.88	\$109.98	\$86.11	\$66.57			
TOTAL LABOR COSTS	\$24,228.42	\$21,380.30	\$27,890.38	\$64,463.52	\$0.00	\$76,937.28	\$106,460.64	\$40,299.48	\$1,331.40	\$362,991.42		
% DISTRIBUTION OF STAFFING	3.64%	3.00%	4.66%	14.82%	0.00%	27.35%	30.93%	14.95%	0.64%			
SUBTOTAL - FC 160 (163)										\$362,991.42		

TASK DESCRIPTION	PROJECT MANAGER	QUALITY MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	ENGINEERING TECHNICIAN	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
FC 160 (165) - TRAFFIC MANAGEMENT SYSTEM (PERMANENT)												
SYSTEM ARCHITECTURE DESIGN	2			16		16				34	2	17
FIBER TRUNKLINE DESIGN (1"=100')	10		60	180		280				530	16	33
DMS DESIGN (4 SIGNS)	4		20	100		160				284	8	36
CCTV DESIGN (4 LOCATIONS)	2			36		24				62	2	31
VEHICLE DETECTORS DESIGN (2 LOCATIONS)	2			36		24				62	2	31
COST ESTIMATE	2		6	20		30				58	N/A	N/A
STANDARDS	2			8		8				18	15	1
HOURS SUB-TOTALS	24	0	86	396	0	542	0	0	0	1048		
CONTRACT RATE PER HOUR (INCLUDE AVG HOURLY RATE TIME OVERHEAD AND FF)	\$212.53	\$227.45	\$191.03	\$138.93	\$117.58	\$89.88	\$109.98	\$86.11	\$66.57			
TOTAL LABOR COSTS	\$5,100.72	\$0.00	\$16,428.58	\$55,016.28	\$0.00	\$48,714.96	\$0.00	\$0.00	\$0.00	\$125,260.54		
% DISTRIBUTION OF STAFFING	2.29%	0.00%	8.21%	37.79%	0.00%	51.72%	0.00%	0.00%	0.00%			
SUBTOTAL - FC 160 (165)										\$125,260.54		



DESCRIPTION									TOTAL MH BY FC	TOTAL COSTS BY FC
FEASIBILITY STUDIES - FC 102 (110)									160	\$22,459.60
SOCIAL/ECON/ENVIRON STUDIES - FC 120 (120)									144	\$19,899.60
RIGHT OF WAY DATA - FC 130 (130)									30	\$3,738.70
MANAGING CONTRACTED/DONATED PE - FC 145 (164)									940	\$155,557.08
ROADWAY DESIGN - FC 160 (160)									2,167	\$252,731.83
ROADWAY DESIGN - FC 160 (161)									2,440	\$288,611.79
ROADWAY DESIGN - FC 160 (162)									1,011	\$124,668.81
ROADWAY DESIGN - FC 160 (163)									3130	\$362,991.42
ROADWAY DESIGN - FC 160 (165)									1048	\$125,260.54
SUBTOTAL LABOR EXPENSES									10022	\$1,355,919.37
OTHER DIRECT EXPENSES	COST/UNIT									
Mileage (# of miles) (current state rate)	\$0.540		350							\$189.00
Photocopies B/W (8 1/2" X 11")	\$0.10		18000							\$1,800.00
Photocopies B/W (11" X 17")	\$0.20		500							\$100.00
Photocopies Color (11" X 17")	\$1.25		100							\$125.00
Photocopies Color (8 1/2" X 11")	0.75		100							\$75.00
										\$0.00
SUBTOTAL DIRECT EXPENSES										\$2,289.00



Method of Payment: Specified Rate

TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING EIT	SENIOR ENGINEER TECH	ENGINEER TECH	GEOLOGIST	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
FC 102(110) - ROUTE AND DESIGN STUDIES												
Stake Boreholes and Utility Clearance						4				4		
Drilling Coordination	1		2		8	8				19		
Logging					2	80				82		
Review Field Logs & Assign Laboratory Testing			2		2					4		
Laboratory Data Review			1		2					3		
Boring Logs Preparation			1		4					5		
Report Preparation	2	2	8		16				2	30		
Final Report Preparation	2	4	4		8				2	20		
Project Meetings	2	2	2							6		
60% Review	2	2	2							6		
90% Review	2	2	1							5		
SHEET TOTALS												
HOURS SUB-TOTALS	11	12	23	0	42	92	0	0	4	184		
LABOR RATE PER HOUR	\$215.17	\$191.54	\$146.52	\$124.02	\$94.78	\$112.52	\$90.81	\$116.00	\$68.01			
DIRECT LABOR COSTS	\$2,366.87	\$2,298.48	\$3,369.96	\$0.00	\$3,980.76	\$10,351.84	\$0.00	\$0.00	\$272.04			
TOTAL LABOR COSTS	\$2,366.87	\$2,298.48	\$3,369.96	\$0.00	\$3,980.76	\$10,351.84	\$0.00	\$0.00	\$272.04	\$22,639.95		
SUBTOTAL (FC 110)										\$22,639.95		

Method of Payment: Unit Cost

DESCRIPTION											
FC 102(110) - ROUTE AND DESIGN STUDIES											\$22,639.95
SUBTOTAL LABOR EXPENSES											\$22,639.95
DIRECT EXPENSES	QUANTITY	RATE	UNIT								
Field Exploration (6@20 feet, 9@30 feet, 3@50 feet)											
Mobilization of Drilling Rig (Trips less than 100 miles from Office to Site)	1	\$450.00	Lumpsum								\$450.00
Mobilization / Demobilization (Trips over 100 miles from Office to Site)	30	\$5.00	each								\$150.00
Soil Boring with TCP (<60 ft)	540	\$33.00	per ft								\$17,820.00
Soil Boring with TCP (>60 ft)	0	\$37.00	per ft								\$0.00
3-Man Crew (driller, logger & helper) travel to/from job site, per day	10	\$150.00	per hour								\$1,500.00
Concrete Coring 6" diameter (up to 6" thick)	108	\$10.00	per inch								\$1,080.00
Concrete Coring 6" diameter (greater than 6" thick)	108	\$15.00	per inch								\$1,620.00
Steel Manhole Cover for Piezometer	2	\$100.00	each								\$200.00
Traffic Control - Off Duty Police Officer	80	\$47.00	per hour								\$3,760.00
Traffic Signs	8	\$450.00	per day								\$3,600.00
Traffic Control Services, Arrow Boards and Attenuator trucks - Large Project (Includes labor, equipment and fuel)	6	\$2,700.00	per day								\$16,200.00
Dozer for Site Clearance	0	\$2,100.00	per day								\$0.00
Laboratory Testing											
Moisture Content	106	\$12.00	each								\$1,272.00
Liquid and Plastic Limits	63	\$70.00	each								\$4,410.00
Sieve Analysis w/Hydrometer	18	\$130.00	each								\$2,340.00
Percent Passing No. 200 Sieve	52	\$45.00	each								\$2,340.00
Unconfined Compression Strength	42	\$48.00	each								\$2,016.00
Unconsolidated Undrained Strength	22	\$63.00	each								\$1,386.00
One Dimensional Consolidation	2	\$350.00	each								\$700.00
Consolidated Undrained Triaxial (3 specimens)	4	\$1,200.00	each								\$4,800.00
Crumb	18	\$38.00	each								\$684.00
Pinhole	9	\$225.00	each								\$2,025.00
Double Hydrometer	9	\$177.00	each								\$1,593.00
SUBTOTAL DIRECT EXPENSES											\$69,946.00
TOTAL											\$92,585.95
GRAND TOTAL											\$92,585.95



TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	ENGINEERING TECHNICIAN	JUNIOR ENGINEERING TECH	SENIOR CADD OPERATOR	CADD OPERATOR	JUNIOR CADD OPERATOR	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
FC 102(110) - ROUTE AND DESIGN STUDIES															
DATA COLLECTION & FIELD RECONNAISSANCE	4	12	16	16	24								72	N/A	N/A
ROADWAY AND HYDRAULIC DESIGN CRITERIA			8	8									16	N/A	N/A
PRELIMINARY COST ESTIMATE			8	8									16	N/A	N/A
HOURS SUB-TOTALS	4	12	32	32	24	0	0	0	0	0	0	0	104		
CONTRACT RATE PER HOUR	\$216.49	\$196.28	\$155.87	\$129.89	\$89.63	\$109.69	\$85.87	\$72.16	\$98.14	\$86.60	\$73.07	\$64.31			
TOTAL LABOR COSTS	\$865.96	\$2,355.36	\$4,987.84	\$4,156.48	\$2,151.12	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$14,516.76		
% DISTRIBUTION OF STAFFING	3.8%	11.5%	30.8%	30.8%	23.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
SUBTOTAL - FC 102 (110)													\$14,516.76		

TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	ENGINEERING TECHNICIAN	JUNIOR ENGINEERING TECH	SENIOR CADD OPERATOR	CADD OPERATOR	JUNIOR CADD OPERATOR	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
FC 130 (130) - RIGHT OF WAY DATA															
UTILITY ADJUSTMENTS COORDINATION													0	N/A	N/A
WORK PLAN	2	2	8		16							4	32	N/A	N/A
ORIENTATION	2	2	12		8							4	28	N/A	N/A
INITIAL PROJECT MEETING	2		2		8								12	N/A	N/A
EXTERNAL COMMUNICATIONS	2	2	24		40							8	76	N/A	N/A
PERMITS AND RIGHTS OF ENTRY	8		8										16	N/A	N/A
PROGRESS MEETINGS	4	4	8		60	20							96	N/A	N/A
COORDINATION WITH LOCAL UTILITY COMMITTEES	4	4	24		24								56	N/A	N/A
INITIAL PROJECT NOTIFICATION LETTERS	2		2		4							36	44	N/A	N/A
UTILITY CONTACT LIST	1	2	8		24							12	47	N/A	N/A
UTILITY EXHIBITS FOR MARK UP	2	2	4		20	20							48	N/A	N/A
HOUSTON DISTRICT UTILITY COOPERATIVE PROCESS (30%, 60% and 90% MEETINGS)	6		6		0	12							24	N/A	N/A
UTILITY CONFLICT LIST	2		12		24	32							70	N/A	N/A
ACCESS MANAGEMENT (EVALUATION & COORDINATION)	4	4	12		24								44	N/A	N/A
UTILITY LAYOUTS	4	4	24		32	80	80						224	16	14
UTILITY CROSSING PLAN AND PROFILES	1	4	8		24	16	8						61	4	15
HOURS SUB-TOTALS	46	30	162	0	308	180	88	0	0	0	0	64	878	0	
CONTRACT RATE PER HOUR (INCLUDE AVG HOURLY RATE TIME OVERHEAD AND FF)	\$216.49	\$196.28	\$155.87	\$129.89	\$89.63	\$109.69	\$85.87	\$72.16	\$98.14	\$86.60	\$73.07	\$64.31			
TOTAL LABOR COSTS	\$9,958.54	\$5,888.40	\$25,250.94	\$0.00	\$27,606.04	\$19,744.20	\$7,556.56	\$0.00	\$0.00	\$0.00	\$0.00	\$4,115.84	\$100,120.52		
% DISTRIBUTION OF STAFFING	5.24%	3.42%	18.45%	0.00%	35.08%	20.50%	10.02%	0.00%	0.00%	0.00%	0.00%	7.29%			
SUBTOTAL - FC 130 (130)													\$100,120.52		

TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	ENGINEERING TECHNICIAN	JUNIOR ENGINEERING TECH	SENIOR CADD OPERATOR	CADD OPERATOR	JUNIOR CADD OPERATOR	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
FC 145 (164) - PROJECT MANAGEMENT AND ADMINISTRATION															
PROJECT MANAGEMENT & COORDINATION WITH TXDOT															
PROJECT MANAGEMENT & COORDINATION WITH SUBCONSULTANT	36	72	96									96	300	N/A	N/A
HOURS SUB-TOTALS	36	72	96	0	0	0	0	0	0	0	0	96	300		
CONTRACT RATE PER HOUR (INCLUDE AVG HOURLY RATE TIME OVERHEAD AND FF)	\$216.49	\$196.28	\$155.87	\$129.89	\$89.63	\$109.69	\$85.87	\$72.16	\$98.14	\$86.60	\$73.07	\$64.31			
TOTAL LABOR COSTS	\$7,793.64	\$14,132.16	\$14,963.52	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$6,173.76	\$43,063.08		
% DISTRIBUTION OF STAFFING	12.00%	24.00%	32.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	32.00%			
SUBTOTAL - FC 145 (164)													\$43,063.08		



TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	ENGINEERING TECHNICIAN	JUNIOR ENGINEERING TECH	SENIOR CADD OPERATOR	CADD OPERATOR	JUNIOR CADD OPERATOR	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
FC 160 (162) - SIGNING, PAVEMENT MARKINGS AND SIGNALIZATION (PERMANENT)															
SIGNING AND PAVEMENT MARKING LAYOUTS	16	32	64	96	124	32			64	160			588	15	39
SIGNING SUMMARIES (LARGE AND SMALL)	4	16	32	40	64								156	4	39
SIGNING, PAVEMENT MARKING, ETC. QUANTITIES	2	8	10	12	16								48	N/A	N/A
SIGNING, PAVEMENT MARKING STANDARDS		8	10	12	16								46		#DIV/0!
HOURS SUB-TOTALS	22	64	116	160	220	32	0	0	64	160	0	0	838	19	
CONTRACT RATE PER HOUR (INCLUDE AVG HOURLY RATE TIME OVERHEAD AND FF)	\$216.49	\$196.28	\$155.87	\$129.89	\$89.63	\$109.69	\$85.87	\$72.16	\$98.14	\$86.60	\$73.07	\$64.31			
TOTAL LABOR COSTS	\$4,762.78	\$12,561.92	\$18,080.92	\$20,782.40	\$19,718.60	\$3,510.08	\$0.00	\$0.00	\$6,280.96	\$13,856.00	\$0.00	\$0.00	\$99,553.66		
% DISTRIBUTION OF STAFFING	2.63%	7.64%	13.84%	19.09%	26.25%	3.82%	0.00%	0.00%	7.64%	19.09%	0.00%	0.00%			
SUBTOTAL - FC 160 (162)													\$99,553.66		

TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	ENGINEERING TECHNICIAN	JUNIOR ENGINEERING TECH	SENIOR CADD OPERATOR	CADD OPERATOR	JUNIOR CADD OPERATOR	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
FC 160 (163) - MISCELLANEOUS (ROADWAY)															
QUANTITIES, SPECIFICATIONS & ESTIMATE:															
GENERAL NOTES, SPECIFICATIONS AND PROVISIONS		12	16	24									52	N/A	N/A
CONSTRUCTION COST EST. (30, 60, 90, 95 & FINAL) WITH VARIANCE REPORT		8	16	24	32								80	N/A	N/A
	0	20	32	48	32	0	0	0	0	0	0	0	132	0	
CONTRACT RATE PER HOUR (INCLUDE AVG HOURLY RATE TIME OVERHEAD AND FF)	\$216.49	\$196.28	\$155.87	\$129.89	\$89.63	\$109.69	\$85.87	\$72.16	\$98.14	\$86.60	\$73.07	\$64.31			
TOTAL LABOR COSTS	\$0.00	\$3,925.60	\$4,987.84	\$6,234.72	\$2,868.16	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$18,016.32		
% DISTRIBUTION OF STAFFING	0.00%	15.15%	24.24%	36.36%	24.24%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%			
SUBTOTAL - FC 160 (163)													\$18,016.32		

DESCRIPTION													TOTAL MH BY FC	TOTAL COSTS BY FC
FEASIBILITY STUDIES - FC 102 (110)													104	\$14,516.76
RIGHT OF WAY DATA - FC 130 (130)													878	\$100,120.52
MANAGING CONTRACTED/DONATED PE - FC 145 (164)													300	\$43,063.08
ROADWAY DESIGN - FC 160 (162)													838	\$99,553.66
ROADWAY DESIGN - FC 160 (163)													132	\$18,016.32
SUBTOTAL LABOR EXPENSES													2252	\$275,270.34
OTHER DIRECT EXPENSES	COST/UNIT													
Mileage (# of miles) (current state rate)	\$0.540	1200												\$648.00
Photocopies B/W (8 1/2" X 11")	\$0.10	360												\$36.00
Photocopies B/W (11" X 17")	\$0.20	950												\$190.00
Photocopies Color (11" X 17")	\$1.25	50												\$62.50
Photocopies Color (8 1/2" X 11")	0.75	160												\$120.00
														\$0.00
														\$0.00
SUBTOTAL DIRECT EXPENSES														\$1,056.50



TASK DESCRIPTION	RPLS PROJECT MANAGER	LIC. STATE LAND SURVEYOR	RPLS TASK LEADER	SENIOR SURVEY TECH	SURVEY TECH	SENIOR GIS OPERATOR	GIS OPERATOR	GIS TECHNICIAN	ADMIN / CLERICAL	1-PERSON SURVEY CREW	2-PERSON SURVEY CREW	3-PERSON SURVEY CREW	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
FC 150 – FIELD SURVEYING AND PHOTOGRAMMETRY															
150.1.1 ESTABLISH PROJECT BASELINE	1	0	2	0	8	0	0	0	0	0	36	0	47	N/A	N/A
150.1.2 HORIZONTAL AND VERTICAL CONTROL SURVEYS	4	0	18	48	0	0	0	0	4	72	36	72	254	N/A	N/A
150.1.3 SURVEY CONTROL INDEX SHEETS	2	0	5	10	56	0	0	0	0	0	0	0	73	N/A	N/A
150.1.4 PROVIDE DATUM TIES	0	0	1	4	0	0	0	0	0	0	10	0	15	N/A	N/A
150.1.5 ESTABLISH ADDITIONAL AND VERIFY EXISTING CONTROL POINTS					(INCLUDED IN 150.1.2)								0	N/A	N/A
150.1.6 VERIFY DTM AND PLANIMETRIC; OBTAIN SUPPLEMENTAL CROSS SECTIONS	8	0	54	0	144	0	0	0	0	0	48	96	350	N/A	N/A
150.1.7 PROFILE AND CROSS SECTION INTERSECTING STREETS (19) AND DRIVEWAYS (141)	8	0	32	0	124	0	0	0	0	0	0	128	292	N/A	N/A
150.1.8 OBTAIN CROSS SECTION OF DRAINAGE CHANNELS (8) 500' US & DS	4	0	24	0	80	0	0	0	0	0	96	0	204	N/A	N/A
150.1.9 RIGHT OF ENTRY	0	0	1	0	12	0	0	0	10	0	0	0	23	N/A	N/A
150.1.10 LOCATE EXISTING UNDERGROUND AND OVERHEAD UTILITIES	1	0	8	0	58	0	0	0	0	0	72	0	139	N/A	N/A
150.1.11 LOCATE EXISTING ROW.	2	0	10	10	30	0	0	0	0	0	40	0	92	N/A	N/A
150.1.12 ROW STAKING FOR ADDITIONAL FIELD TOPO RELATED TO DESIGN	1	0	1	1	1	0	0	0	0	0	10	0	14	N/A	N/A
150.1.13 REVIEW ROW MAPS	0	0	8	10	0	0	0	0	0	0	0	0	18	N/A	N/A
150.1.14 DETERMINE ANY CHANGES IN TOPO FROM OUTDATED MAPS	1	0	2	0	8	0	0	0	0	0	10	0	21	N/A	N/A
150.1.15 DETERMINE TYPE OF EXISTING MATERIAL, EXISTING PAVEMENTS, ETC.	0	0	1	0	4	0	0	0	0	0	10	0	15	N/A	N/A
150.1.16 OBTAIN PROFILES OF EXISTING DRAINAGE FACILITIES	1	0	5	0	28	0	0	0	0	0	32	0	66	N/A	N/A
150.1.17 PROVIDE DETAILS OF EXISTING BRIDGE STRUCTURES	2	0	8	0	36	0	0	0	0	0	48	0	94	N/A	N/A
150.1.18 OBTAIN TOP OF MANHOLE AND FLOWLINE ELEVATIONS, INLETS, VALVES	1	0	4	0	20	0	0	0	0	0	24	0	49	N/A	N/A
150.1.19 PROVIDE TEMPORARY SIGNS, TRAFFIC CONTROL, ETC.	0	0	2	0	0	0	0	0	0	0	48	0	50	N/A	N/A
150.1.20 OBTAIN TIES TO EXISTING BRIDGES OR CULVERTS	2	0	8	0	60	0	0	0	0	0	72	0	142	N/A	N/A
150.1.21 OBTAIN PGL AND EDGES OF SLAB AT BENT LOCATION					(NOT APPLICABLE)								0	N/A	N/A
150.1.22 TIE DOWN SOIL LOCATIONS BY STATION, OFFSET, AND SURFACE ELEVATION	0	0	1	0	5	0	0	0	0	0	24	0	30	N/A	N/A
150.1.23 WETLANDS SURVEYING (SHALL BE HANDLED UNDER SEPARATE AGREEMENT)					(NOT APPLICABLE)								0	N/A	N/A
150.1.24 TRAFFIC CONTROL					(INCLUDED IN 150.1.19)								0	N/A	N/A
													0		
HOURS SUB-TOTALS	38	0	195	83	674	0	0	0	14	72	616	296	1988		
CONTRACT RATE PER HOUR	\$140.00	\$118.35	\$124.99	\$83.42	\$72.68	\$134.22	\$90.43	\$83.71	\$64.31	\$95.00	\$137.00	\$165.00			
TOTAL LABOR COSTS	\$5,320.00	\$0.00	\$24,373.05	\$6,923.86	\$48,986.32	\$0.00	\$0.00	\$0.00	\$900.34	\$6,840.00	\$84,392.00	\$48,840.00	\$226,575.57		
% DISTRIBUTION OF STAFFING	1.9%	0.0%	9.8%	4.2%	33.9%	0.0%	0.0%	0.0%	0.7%	3.6%	31.0%	14.9%			
SUBTOTAL - FC 160 (150 - SURVEYING)													\$226,575.57		

DESCRIPTION												TOTAL MH BY FC	TOTAL COSTS BY FC
ROADWAY DESIGN - FC 160 (150 - SURVEYING)												1988	\$226,575.57
SUBTOTAL LABOR EXPENSES												1988	\$226,575.57
OTHER DIRECT EXPENSES	COST/UNIT												
Mileage (# of miles) (current state rate)	\$0.540	11808											\$6,376.32
													0
SUBTOTAL DIRECT EXPENSES													\$6,376.32



TASK DESCRIPTION	PROJECT MANAGER	SENIOR HYDROLOGIST	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	ENGINEERING TECHNICIAN	JUNIOR ENGINEERING TECH	SENIOR CADD OPERATOR	CADD OPERATOR	JUNIOR CADD OPERATOR	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
FC 160 (161) - DRAINAGE																
HYDROLOGIC STUDIES (6+ MILES PLUS CONTRIBUTING AREA TO 9 OUTFALLS)																
DELINEATE EXISTING DRAINAGE AREAS	16	8	20	8	16	120	4		8		32			232	N/A	N/A
DETERMINE EXISTING HYDROLOGIC PARAMETERS	8		4	12		40	4		8		16			92	N/A	N/A
CALCULATE EXISTING DISCHARGES	4		4		12	24								44	N/A	N/A
FEMA FLOWS COMPARISON			2	2	2									6	N/A	N/A
DELINEATE PROPOSED DRAINAGE AREAS	8	4	8	8	12	60	4		8		16			128	N/A	N/A
DETERMINE PROPOSED HYDROLOGIC PARAMETERS	8		4	12		24	4		8		12			72	N/A	N/A
CALCULATED PROPOSED DISCHARGES	4		4		12	24								44	N/A	N/A
HYDRAULIC STUDIES - CROSS CULVERTS (9 CROSS DRAINAGE STRUCTURES)																
ASSIGN HYDROLOGY			2	2		8								12	N/A	N/A
DEVELOP HEC-RAS MODELS FOR 9 EXISTING CROSSINGS	20	8	16	20	16	60								140	N/A	N/A
DETERMINE EXISTING WATER SURFACE ELEVATIONS	2		4	6		16								28	N/A	N/A
ANALYZE CROSSINGS AND RECOMMEND IMPROVEMENTS	16	8	24	20	16	60				30				174	N/A	N/A
QUANTIFY IMPACTS AND RECOMMEND MITIGATION	4	4	16	16	12	30				20				102	N/A	N/A
HYDRAULIC STUDIES - DITCHES / STORM DRAINS (6+ MILES AND 9 OUTFALLS)																
ASSIGN HYDROLOGY			4	8		16								28	N/A	N/A
DEVELOP XP-SWMM MODEL FOR 9 EXISTING OUTFALL SYSTEMS	4	8	12	16	20	100								160	N/A	N/A
DETERMINE EXISTING TAILWATER CONDITIONS			2		4	4								10	N/A	N/A
ANALYZE EXISTING DRAINAGE SYSTEMS AND DETERMINE HGL	8		20	16	12	40								96	N/A	N/A
DEVELOP XP-SWMM MODEL FOR 9 PROPOSED OUTFALL SYSTEMS	24	8	24	16	20	120								212	N/A	N/A
DETERMINE PROPOSED TAILWATER CONDITIONS			2		4	4								10	N/A	N/A
ANALYZE / DESIGN PROPOSED DRAINAGE SYSTEMS AND DETERMINE HGL	4	4	16	16	16	60		14						130	N/A	N/A
OPTIMIZE DRAINAGE SYSTEMS TO MITIGATE IMPACTS (IN-LINE AND OFF-LINE)	4	4	12	12	16	52		20						120	N/A	N/A
CONDUCT EXTREME EVENT SHEET FLOW ANALYSIS	2		16		12	40		10						80	N/A	N/A
DRAINAGE REPORT																
PREPARE PRELIMINARY LETTER REPORT	4	4	8	4	8	24				4	16		4	76	N/A	N/A
PREPARE DRAFT DRAINAGE REPORT	16	8	24	4	16	60				16	40		8	192	N/A	N/A
PREPARE FINAL DRAINAGE REPORT	8	4	4	4	8	32				4	16		4	84	N/A	N/A
HOURS SUB-TOTALS	164	72	252	202	234	1,018	16	44	32	74	148	0	16	2,272	0	
CONTRACT RATE PER HOUR (INCLUDE AVG HOURLY RATE TIME OVERHEAD AND FF)	\$213.73	\$224.69	\$191.81	\$145.23	\$128.78	\$93.16	\$109.60	\$97.44	\$73.98	\$101.38	\$82.20	\$69.37	\$63.02			
TOTAL LABOR COSTS	\$35,051.36	\$16,177.68	\$48,335.36	\$29,335.51	\$30,135.62	\$94,840.34	\$1,753.66	\$4,287.27	\$2,367.45	\$7,502.12	\$12,165.60	\$0.00	\$1,008.36	\$282,960.33		
% DISTRIBUTION OF STAFFING	7.22%	3.17%	11.09%	8.89%	10.30%	44.81%	0.70%	1.94%	1.41%	3.26%	6.51%	0.00%	0.70%			
SUBTOTAL - FC 160 (161)														\$282,960.33		

DESCRIPTION													TOTAL MH BY FC	TOTAL COSTS BY FC
ROADWAY DESIGN - FC 160 (161)													2,272	\$282,960.33
SUBTOTAL LABOR EXPENSES													2272	\$282,960.33
OTHER DIRECT EXPENSES	COST/UNIT													
Mileage (# of miles) (current state rate)	\$0.540		2000											\$1,080.00
														\$0.00
SUBTOTAL DIRECT EXPENSES														\$1,080.00



TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	ENGINEERING TECHNICIAN	JUNIOR ENGINEERING TECH	SENIOR CADD OPERATOR	CADD OPERATOR	JUNIOR CADD OPERATOR	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
FC 102(110) - ROUTE AND DESIGN STUDIES															
DATA COLLECTION & FIELD RECONNAISSANCE (1 FIELD VISIT)		2	4	12	12		12						42	N/A	N/A
HOURS SUB-TOTALS	0	2	4	12	12	0	12	0	0	0	0	0	42		
CONTRACT RATE PER HOUR	\$198.38	\$173.29	\$137.53	\$111.75	\$85.41	\$101.39	\$82.52	\$0.00	\$87.51	\$0.00	\$0.00	\$63.27			
TOTAL LABOR COSTS	\$0.00	\$346.58	\$550.12	\$1,341.00	\$1,024.92	\$0.00	\$990.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4,252.86		
% DISTRIBUTION OF STAFFING	0.0%	4.8%	9.5%	28.6%	28.6%	0.0%	28.6%	0.0%	0.0%	0.0%	0.0%	0.0%			
SUBTOTAL - FC 102 (110)													\$4,252.86		

TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	ENGINEERING TECHNICIAN	JUNIOR ENGINEERING TECH	SENIOR CADD OPERATOR	CADD OPERATOR	JUNIOR CADD OPERATOR	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
FC 145 (164) – PROJECT MANAGEMENT AND ADMINISTRATION															
PROJECT MANAGEMENT & COORDINATION WITH TXDOT															
PROJECT MANAGEMENT & COORDINATION WITH SUBCONSULTANT	20		20									10	50	N/A	N/A
PROGRESS/COORDINATION MEETINGS ( 3 MEETINGS)	6		6										12	N/A	N/A
HOURS SUB-TOTALS	26	0	26	0	0	0	0	0	0	0	0	10	62		
CONTRACT RATE PER HOUR (INCLUDE AVG HOURLY RATE TIME OVERHEAD AND FF)	\$198.38	\$173.29	\$137.53	\$111.75	\$85.41	\$101.39	\$82.52	\$0.00	\$87.51	\$0.00	\$0.00	\$63.27			
TOTAL LABOR COSTS	\$5,157.88	\$0.00	\$3,575.78	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$632.70	\$9,366.36		
% DISTRIBUTION OF STAFFING	41.94%	0.00%	41.94%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	16.13%			
SUBTOTAL - FC 145 (164)													\$9,366.36		

TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	ENGINEERING TECHNICIAN	JUNIOR ENGINEERING TECH	SENIOR CADD OPERATOR	CADD OPERATOR	JUNIOR CADD OPERATOR	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
FC 160 (160) – ROADWAY DESIGN CONTROLS															
ROADWAY DESIGN:															
PROPOSED TYPICAL SECTIONS	4	8	10	12	16	20			32	48			150	4	38
EXISTING TYPICAL SECTIONS		2	4	6	6				8				26	1	26
PAVEMENT REMOVAL PLANS		3	15	20	90		100						228	16	14
HOURS SUB-TOTALS	4	13	29	38	112	20	100	0	40	48	0	0	404	21	
CONTRACT RATE PER HOUR (INCLUDE AVG HOURLY RATE TIME OVERHEAD AND FF)	\$198.38	\$173.29	\$137.53	\$111.75	\$85.41	\$101.39	\$82.52	\$0.00	\$87.51	\$0.00	\$0.00	\$63.27			
TOTAL LABOR COSTS	\$793.52	\$2,252.77	\$3,988.37	\$4,246.50	\$9,565.92	\$2,027.80	\$8,252.00	\$0.00	\$3,500.40	\$0.00	\$0.00	\$0.00	\$34,627.28		
% DISTRIBUTION OF STAFFING	0.99%	3.22%	7.18%	9.41%	27.72%	4.95%	24.75%	0.00%	9.90%	11.88%	0.00%	0.00%			
SUBTOTAL - FC 160 (160)													\$34,627.28		



TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEERING TECH	ENGINEERING TECHNICIAN	JUNIOR ENGINEERING TECH	SENIOR CADD OPERATOR	CADD OPERATOR	JUNIOR CADD OPERATOR	ADMIN/ CLERICAL	TOTAL LABOR HRS. & COSTS	NO OF DWGS	LABOR HRS PER SHEET
FC 160 (163) - MISCELLANEOUS (ROADWAY)															
STORM WATER POLLUTION PREVENTION PLAN (SW3P):															
STORM WATER POLLUTION PREVENTION PLAN		4		24	82		150						260	13	20
STORM WATER POLLUTION PREVENTION PLAN STANDARDS				1			2						3	3	1
STORM WATER POLLUTION PREVENTION PLAN SUMMARIES		2		4	16		12						34	1	34
QUANTITIES, SPECIFICATIONS & ESTIMATE:															
COMPUTE & TABULATE REMOVAL QUANTITIES		2	4		15		16						37	N/A	N/A
GENERAL NOTES, SPECIFICATIONS AND PROVISIONS		2	2										4	N/A	N/A
CONSTRUCTION COST EST. (30, 60, 90, 95 & FINAL) WITH VARIANCE REPORT		1	4		4								9	N/A	N/A
	0	11	10	29	117	0	180	0	0	0	0	0	347	17	
CONTRACT RATE PER HOUR (INCLUDE AVG HOURLY RATE TIME OVERHEAD AND FF)	\$198.38	\$173.29	\$137.53	\$111.75	\$85.41	\$101.39	\$82.52	\$0.00	\$87.51	\$0.00	\$0.00	\$63.27			
TOTAL LABOR COSTS	\$0.00	\$1,906.19	\$1,375.30	\$3,240.75	\$9,992.97	\$0.00	\$14,853.60	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$31,368.81		
% DISTRIBUTION OF STAFFING	0.00%	3.17%	2.88%	8.36%	33.72%	0.00%	51.87%	0.00%	0.00%	0.00%	0.00%	0.00%			
SUBTOTAL - FC 160 (163)													\$31,368.81		

DESCRIPTION													TOTAL MH BY FC	TOTAL COSTS BY FC
FEASIBILITY STUDIES - FC 102 (110)													42	\$4,252.86
MANAGING CONTRACTED/DONATED PE - FC 145 (164)													62	\$9,366.36
ROADWAY DESIGN - FC 160 (160)													404	\$34,627.28
ROADWAY DESIGN - FC 160 (163)													347	\$31,368.81
SUBTOTAL LABOR EXPENSES													855	\$79,615.31
OTHER DIRECT EXPENSES	COST/UNIT													
Mileage (# of miles) (current state rate)	\$0.540	1000												\$540.00
Deliveries (4 each)	\$40.00	4												\$160.00
Copies (11"x17")	\$0.10	500												\$50.00
SUBTOTAL DIRECT EXPENSES														\$750.00



TASK DESCRIPTION Construction Phase Services Work Authorization Termination Date:	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEER TECH	ENGINEER TECH	JUNIOR ENGINEER TECH	SENIOR CADD OPERATOR	CADD OPERATOR	JUNIOR CADD OPERATOR	ADMIN/ CLERICAL	TOTAL HOME OFFICE HRS. & COSTS
Minimum Labor Rate Per Hour - Cost Plus Fixed Fee	\$ 7.25	\$ 7.25	\$ 7.25	\$ 7.25	\$ 7.25	\$ 7.25	\$ 7.25	\$ 7.25	\$ 7.25	\$ 7.25	\$ 7.25	\$ 7.25	
Maximum Labor Rate Per Hour - Cost Plus Fixed Fee	\$ 73.43	\$ 66.00	\$ 48.00	\$ 40.63	\$ 31.05	\$ 38.00	\$ 29.75	\$ 25.00	\$ 31.81	\$ 27.63	\$ 25.32	\$ 23.00	
Labor Rate Per Hour (90% of Max Rate)	\$ 66.09	\$ 59.40	\$ 43.20	\$ 36.57	\$ 27.95	\$ 34.20	\$ 26.78	\$ 22.50	\$ 28.63	\$ 24.87	\$ 22.79	\$ 20.70	
FC 309 (309) - CONSTRUCTION PHASE SERVICES													
Shop drawings with review comments.	20	10	40		80							40	190
Redesign	20	10	50	10	80	60	8	8	8	8	8		270
Response to RFIs	20	20	50		40							40	170
Change order plans as requested by the State	40	40	50	8	60	40	8	8	8	8	8		278
Sub-Total Labor Hours	100	80	190	18	260	100	16	16	16	16	16	80	908
Direct Labor Cost	\$ 6,608.70	\$ 4,752.00	\$ 8,208.00	\$ 658.21	\$ 7,265.70	\$ 3,420.00	\$ 428.40	\$ 360.00	\$ 458.06	\$ 397.87	\$ 364.61	\$ 1,656.00	\$ 34,577.55
Direct Labor Cost + OH =1 + 1.6312	2.6312	2.6312	2.6312	2.6312	2.6312	2.6312	2.6312	2.6312	2.6312	2.6312	2.6312	2.6312	
Sub-Total Labor Cost	\$ 17,388.81	\$ 12,503.46	\$ 21,596.89	\$ 1,731.87	\$ 19,117.51	\$ 8,998.70	\$ 1,127.21	\$ 947.23	\$ 1,205.26	\$ 1,046.88	\$ 959.36	\$ 4,357.27	\$ 90,980.45
Fixed Fee (10%)	\$ 1,738.88	\$ 1,250.35	\$ 2,159.69	\$ 173.19	\$ 1,911.75	\$ 899.87	\$ 112.72	\$ 94.72	\$ 120.53	\$ 104.69	\$ 95.94	\$ 435.73	\$ 9,098.05
TOTAL LABOR COST	\$ 19,127.69	\$ 13,753.81	\$ 23,756.58	\$ 1,905.06	\$ 21,029.26	\$ 9,898.57	\$ 1,239.93	\$ 1,041.95	\$ 1,325.79	\$ 1,151.57	\$ 1,055.30	\$ 4,793.00	\$ 100,078.50



TASK DESCRIPTION	PROJECT MANAGER	SENIOR ENGINEER	PROJECT ENGINEER	DESIGN ENGINEER	ENGINEER IN TRAINING	SENIOR ENGINEER TECH	ENGINEER TECH	JUNIOR ENGINEER TECH	SENIOR CADD OPERATOR	CADD OPERATOR	JUNIOR CADD OPERATOR	ADMIN/ CLERICAL	TOTAL HOME OFFICE HRS. & COSTS
Testimony for Right of Way Hearings Work Authorization Termination Date:													
Minimum Labor Rate Per Hour - Cost Plus Fixed Fee	\$ 7.25	\$ 7.25	\$ 7.25	\$ 7.25	\$ 7.25	\$ 7.25	\$ 7.25	\$ 7.25	\$ 7.25	\$ 7.25	\$ 7.25	\$ 7.25	
Maximum Labor Rate Per Hour - Cost Plus Fixed Fee	\$ 73.43	\$ 66.00	\$ 48.00	\$ 40.63	\$ 31.05	\$ 38.00	\$ 29.75	\$ 25.00	\$ 31.81	\$ 27.63	\$ 25.32	\$ 23.00	
Labor Rate Per Hour (90% of Max Rate)	\$ 66.09	\$ 59.40	\$ 43.20	\$ 36.57	\$ 27.95	\$ 34.20	\$ 26.78	\$ 22.50	\$ 28.63	\$ 24.87	\$ 22.79	\$ 20.70	
FC 160 (163) - Roadway Design													
Testimony for Right of Way Hearings													0
Condemnation Support	40	288	40										368
Exhibits	10	60	60	8	60	160	8	8	8	8	8	8	406
Sub-Total Labor Hours	50	348	100	8	60	160	8	8	8	8	8	8	774
Direct Labor Cost	\$ 3,304.35	\$ 20,671.20	\$ 4,320.00	\$ 292.54	\$ 1,676.70	\$ 5,472.00	\$ 214.20	\$ 180.00	\$ 229.03	\$ 198.94	\$ 182.30	\$ 165.60	\$ 36,906.86
Direct Labor Cost + OH =1 + 1.6312	2.6312	2.6312	2.6312	2.6312	2.6312	2.6312	2.6312	2.6312	2.6312	2.6312	2.6312	2.6312	
Sub-Total Labor Cost	\$ 8,694.41	\$ 54,390.06	\$ 11,366.78	\$ 769.72	\$ 4,411.73	\$ 14,397.93	\$ 563.60	\$ 473.62	\$ 602.63	\$ 523.44	\$ 479.68	\$ 435.73	\$ 97,109.33
Fixed Fee (10%)	\$ 869.44	\$ 5,439.01	\$ 1,136.68	\$ 76.97	\$ 441.17	\$ 1,439.79	\$ 56.36	\$ 47.36	\$ 60.26	\$ 52.34	\$ 47.97	\$ 43.57	\$ 9,710.93
TOTAL LABOR COST	\$ 9,563.85	\$ 59,829.07	\$ 12,503.46	\$ 846.69	\$ 4,852.90	\$ 15,837.72	\$ 619.96	\$ 520.98	\$ 662.89	\$ 575.78	\$ 527.65	\$ 479.30	\$ 106,820.26
FC 145 (164) - RIGHT-OF-WAY DATA													
Prepare Monthly Progress Reports	12	12	12	12								12	60
Sub-Total Labor Hours	12	12	12	12	0	0	0	0	0	0	0	12	60
Direct Labor Cost	\$ 793.04	\$ 712.80	\$ 518.40	\$ 438.80	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 248.40	\$ 2,711.45
Direct Labor Cost + OH =1 + 1.6312	2.6312	2.6312	2.6312	2.6312	2.6312	2.6312	2.6312	2.6312	2.6312	2.6312	2.6312	2.6312	
Sub-Total Labor Cost	\$ 2,086.66	\$ 1,875.52	\$ 1,364.01	\$ 1,154.58	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 653.59	\$ 7,134.36
Fixed Fee (10%)	\$ 208.67	\$ 187.55	\$ 136.40	\$ 115.46	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 65.36	\$ 713.44
TOTAL LABOR COST	\$ 2,295.33	\$ 2,063.07	\$ 1,500.41	\$ 1,270.04	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 718.95	\$ 7,847.80

GRAND TOTAL \$ 114,668.06

FC 102(110) - ROUTE AND DESIGN STUDIES	\$ 137,910.67
FC 120(120) – SOCIAL, ECONOMIC AND ENVIRONMENTAL STUDIES AND PUBLIC INVOLVEMENT	\$ 19,899.60
FC 130 (130) - RIGHT OF WAY DATA	\$ 103,859.22
FC 160 (150) – FIELD SURVEYING AND PHOTOGRAMMETRY	\$ 232,951.89
FC 160 (160) – ROADWAY DESIGN CONTROLS	\$ 287,359.11
FC 160 (161) - DRAINAGE	\$ 572,652.12
FC 160 (162) – SIGNING, PAVEMENT MARKINGS AND SIGNALIZATION (PERMANENT)	\$ 224,222.47
FC 160 (163) - MISCELLANEOUS (ROADWAY)	\$ 412,376.55
FC 145 (164) – PROJECT MANAGEMENT AND ADMINISTRATION	\$ 207,986.52
FC 160 (165) - TRAFFIC MANAGEMENT SYSTEM (PERMANENT)	\$ 125,260.54
OTHER DIRECT EXPENSES	\$ 81,497.82
TOTAL	\$ 2,405,976.51

Invoice Number	Description of Deliverable	Summary of Function Code Deliverable	Percentage of Work by Function code	Payment Amount By Function Code	Cumulative Percentage of Work by Function	Cumulative Total By Function Code
1	Field surveying/ DCC	FC 102(110) - ROUTE AND DESIGN STUDIES	70.0%	\$ 96,537.47	70.0%	\$ 96,537.47
		FC 120(120) – SOCIAL, ECONOMIC AND ENVIRONMENTAL STUDIES AND PUBLIC INVOLVEMENT	0.0%	\$ -	0.0%	\$ -
		FC 130 (130) - RIGHT OF WAY DATA	70.0%	\$ 72,701.45	70.0%	\$ 72,701.45
		FC 160 (150) – FIELD SURVEYING AND PHOTOGRAMMETRY	70.0%	\$ 163,066.32	70.0%	\$ 163,066.32
		FC 160 (160) – ROADWAY DESIGN CONTROLS	10.0%	\$ 28,735.91	10.0%	\$ 28,735.91
		FC 160 (161) - DRAINAGE	10.0%	\$ 57,265.21	10.0%	\$ 57,265.21
		FC 160 (162) – SIGNING, PAVEMENT MARKINGS AND SIGNALIZATION (PERMANENT)	10.0%	\$ 22,422.25	10.0%	\$ 22,422.25
		FC 160 (163) - MISCELLANEOUS (ROADWAY)	0.0%	\$ -	0.0%	\$ -
		FC 145 (164) – PROJECT MANAGEMENT AND ADMINISTRATION	10.0%	\$ 20,798.65	10.0%	\$ 20,798.65
		FC 160 (165) - TRAFFIC MANAGEMENT SYSTEM (PERMANENT)	0.0%	\$ -	0.0%	\$ -
		OTHER DIRECT EXPENSES	30.0%	\$ 24,449.35	30.0%	\$ 24,449.35
		Sub-Total	20.2%	\$ 485,976.61	20.2%	\$ 485,976.61
2	30% Submittal	FC 102(110) - ROUTE AND DESIGN STUDIES	30.0%	\$ 41,373.20	100.0%	\$ 137,910.67
		FC 120(120) – SOCIAL, ECONOMIC AND ENVIRONMENTAL STUDIES AND PUBLIC INVOLVEMENT	50.0%	\$ 9,949.80	50.0%	\$ 9,949.80
		FC 130 (130) - RIGHT OF WAY DATA	30.0%	\$ 31,157.77	100.0%	\$ 103,859.22
		FC 160 (150) – FIELD SURVEYING AND PHOTOGRAMMETRY	30.0%	\$ 69,885.57	100.0%	\$ 232,951.89
		FC 160 (160) – ROADWAY DESIGN CONTROLS	20.0%	\$ 57,471.82	30.0%	\$ 86,207.73
		FC 160 (161) - DRAINAGE	20.0%	\$ 114,530.42	30.0%	\$ 171,795.63
		FC 160 (162) – SIGNING, PAVEMENT MARKINGS AND SIGNALIZATION (PERMANENT)	20.0%	\$ 44,844.49	30.0%	\$ 67,266.74
		FC 160 (163) - MISCELLANEOUS (ROADWAY)	20.0%	\$ 82,475.31	20.0%	\$ 82,475.31
		FC 145 (164) – PROJECT MANAGEMENT AND ADMINISTRATION	20.0%	\$ 41,597.30	30.0%	\$ 62,395.95
		FC 160 (165) - TRAFFIC MANAGEMENT SYSTEM (PERMANENT)	15.0%	\$ 18,789.08	15.0%	\$ 18,789.08
		OTHER DIRECT EXPENSES	30.0%	\$ 24,449.35	60.0%	\$ 48,898.70
		Sub-Total	22.3%	\$ 536,524.11	42.5%	\$ 1,022,500.72
4	60% Submittal	FC 102(110) - ROUTE AND DESIGN STUDIES	0.0%	\$ -	100.0%	\$ 137,910.67
		FC 120(120) – SOCIAL, ECONOMIC AND ENVIRONMENTAL STUDIES AND PUBLIC INVOLVEMENT	30.0%	\$ 5,969.88	80.0%	\$ 15,919.68
		FC 130 (130) - RIGHT OF WAY DATA	0.0%	\$ -	100.0%	\$ 103,859.22
		FC 160 (150) – FIELD SURVEYING AND PHOTOGRAMMETRY	0.0%	\$ -	100.0%	\$ 232,951.89
		FC 160 (160) – ROADWAY DESIGN CONTROLS	30.0%	\$ 86,207.73	60.0%	\$ 172,415.46
		FC 160 (161) - DRAINAGE	30.0%	\$ 171,795.64	60.0%	\$ 343,591.27
		FC 160 (162) – SIGNING, PAVEMENT MARKINGS AND SIGNALIZATION (PERMANENT)	30.0%	\$ 67,266.74	60.0%	\$ 134,533.48
		FC 160 (163) - MISCELLANEOUS (ROADWAY)	30.0%	\$ 123,712.97	50.0%	\$ 206,188.28
		FC 145 (164) – PROJECT MANAGEMENT AND ADMINISTRATION	35.0%	\$ 72,795.28	65.0%	\$ 135,191.23
		FC 160 (165) - TRAFFIC MANAGEMENT SYSTEM (PERMANENT)	40.0%	\$ 50,104.22	55.0%	\$ 68,893.30
		OTHER DIRECT EXPENSES	20%	\$ 16,299.56	80.0%	\$ 65,198.26
		Sub-Total	24.7%	\$ 594,152.02	67.2%	\$ 1,616,652.74
5	90% Submittal	FC 102(110) - ROUTE AND DESIGN STUDIES	0.0%	\$ -	100.0%	\$ 137,910.67
		FC 120(120) – SOCIAL, ECONOMIC AND ENVIRONMENTAL STUDIES AND PUBLIC INVOLVEMENT	20.0%	\$ 3,979.92	100.0%	\$ 19,899.60
		FC 130 (130) - RIGHT OF WAY DATA	0.0%	\$ -	100.0%	\$ 103,859.22
		FC 160 (150) – FIELD SURVEYING AND PHOTOGRAMMETRY	0.0%	\$ -	100.0%	\$ 232,951.89
		FC 160 (160) – ROADWAY DESIGN CONTROLS	30.0%	\$ 86,207.73	90.0%	\$ 258,623.19
		FC 160 (161) - DRAINAGE	30.0%	\$ 171,795.64	90.0%	\$ 515,386.91
		FC 160 (162) – SIGNING, PAVEMENT MARKINGS AND SIGNALIZATION (PERMANENT)	30.0%	\$ 67,266.74	90.0%	\$ 201,800.22
		FC 160 (163) - MISCELLANEOUS (ROADWAY)	30.0%	\$ 123,712.97	80.0%	\$ 329,901.25
		FC 145 (164) – PROJECT MANAGEMENT AND ADMINISTRATION	20.0%	\$ 41,597.30	85.0%	\$ 176,788.53
		FC 160 (165) - TRAFFIC MANAGEMENT SYSTEM (PERMANENT)	30.0%	\$ 37,578.16	85.0%	\$ 106,471.46
		OTHER DIRECT EXPENSES	10.0%	\$ 8,149.78	90.0%	\$ 73,348.04
		Sub-Total	22.5%	\$ 540,288.24	89.6%	\$ 2,156,940.98

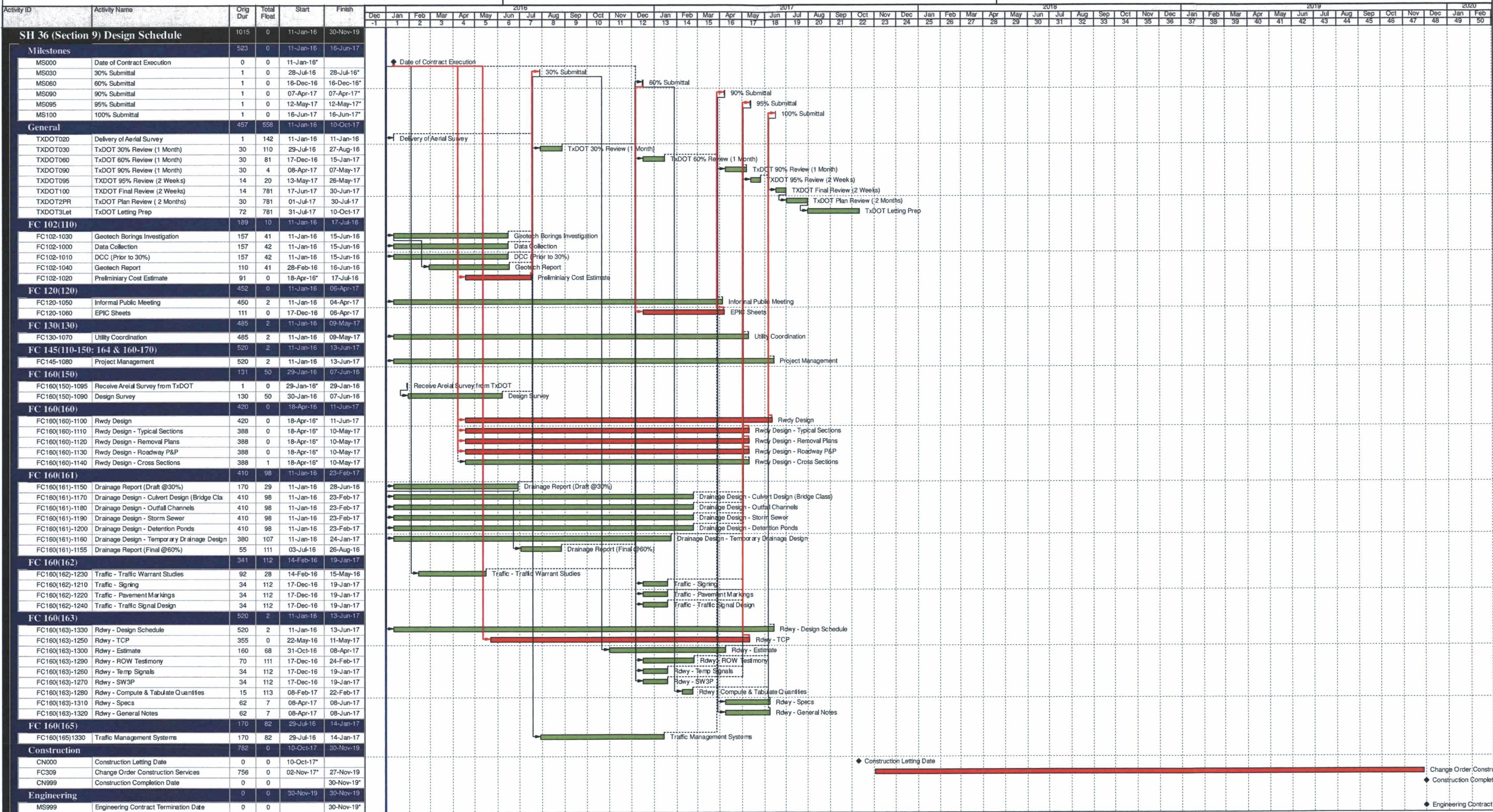
5	95% Submittal	FC 102(110) - ROUTE AND DESIGN STUDIES	0.0%	\$ -	100.0%	\$ 137,910.67
		FC 120(120) – SOCIAL, ECONOMIC AND ENVIRONMENTAL STUDIES AND PUBLIC INVOLVEMENT	0.0%	\$ -	100.0%	\$ 19,899.60
		FC 130 (130) - RIGHT OF WAY DATA	0.0%	\$ -	100.0%	\$ 103,859.22
		FC 160 (150) – FIELD SURVEYING AND PHOTOGRAMMETRY	0.0%	\$ -	100.0%	\$ 232,951.89
		FC 160 (160) – ROADWAY DESIGN CONTROLS	5.0%	\$ 14,367.96	95.0%	\$ 272,991.15
		FC 160 (161) - DRAINAGE	5.0%	\$ 28,632.61	95.0%	\$ 544,019.52
		FC 160 (162) – SIGNING, PAVEMENT MARKINGS AND SIGNALIZATION (PERMANENT)	5.0%	\$ 11,211.12	95.0%	\$ 213,011.34
		FC 160 (163) - MISCELLANEOUS (ROADWAY)	15.0%	\$ 61,856.48	95.0%	\$ 391,757.73
		FC 145 (164) – PROJECT MANAGEMENT AND ADMINISTRATION	10.0%	\$ 20,798.65	95.0%	\$ 197,587.18
		FC 160 (165) - TRAFFIC MANAGEMENT SYSTEM (PERMANENT)	10.0%	\$ 12,526.05	95.0%	\$ 118,997.51
		OTHER DIRECT EXPENSES	5.0%	\$ 4,074.89	95.0%	\$ 77,422.93
		Sub-Total	6.4%	\$ 153,467.76	96.0%	\$ 2,310,408.74
6	100%/Final Submittal	FC 102(110) - ROUTE AND DESIGN STUDIES	0.0%	\$ -	100.0%	\$ 137,910.67
		FC 120(120) – SOCIAL, ECONOMIC AND ENVIRONMENTAL STUDIES AND PUBLIC INVOLVEMENT	0.0%	\$ -	100.0%	\$ 19,899.60
		FC 130 (130) - RIGHT OF WAY DATA	0.0%	\$ -	100.0%	\$ 103,859.22
		FC 160 (150) – FIELD SURVEYING AND PHOTOGRAMMETRY	0.0%	\$ -	100.0%	\$ 232,951.89
		FC 160 (160) – ROADWAY DESIGN CONTROLS	5.0%	\$ 14,367.96	100.0%	\$ 287,359.11
		FC 160 (161) - DRAINAGE	5.0%	\$ 28,632.61	100.0%	\$ 572,652.13
		FC 160 (162) – SIGNING, PAVEMENT MARKINGS AND SIGNALIZATION (PERMANENT)	5.0%	\$ 11,211.12	100.0%	\$ 224,222.46
		FC 160 (163) - MISCELLANEOUS (ROADWAY)	5.0%	\$ 20,618.83	100.0%	\$ 412,376.56
		FC 145 (164) – PROJECT MANAGEMENT AND ADMINISTRATION	5.0%	\$ 10,399.33	100.0%	\$ 207,986.51
		FC 160 (165) - TRAFFIC MANAGEMENT SYSTEM (PERMANENT)	5.0%	\$ 6,263.03	100.0%	\$ 125,260.54
		OTHER DIRECT EXPENSES	5.0%	\$ 4,074.89	100.0%	\$ 81,497.82
		Sub-Total	4.0%	\$ 95,567.77	100.0%	\$ 2,405,976.51
		GRAND TOTAL OF PAYMENTS				\$ 2,405,976.51



SH36 (Section 9) Design Schedule  
BGE, CSJ: 0188-02-036

Attachment F - Work Schedule

Legacy Contract No. 12-SSDP5127  
Peoplesoft Contract No. 5033



Actual Work    Critical Remaining Work    Milestone  
Remaining Work    % Complete



**ATTACHMENT G**

**STATE DOCUMENT AND INFORMATION EXCHANGE**  
**HOUSTON DISTRICT PROCEDURES**

House Bill 6 enacted by the 63rd legislature, established uniform procedures for the transmittal of Texas Department of Transportation (STATE) information to outside parties. This procedure is currently being successfully used for documenting the transmittal of computer data. The following corollary procedure has been developed to assure uniform transaction documentation, adequate storage environments, and sufficient information to enable indexing and shared access of computer media received.

Exchange of project files between the Project Engineer and the Engineer may be easily handled using our FTP server. Instructions for the use of FTP can be found internally at <http://houwwwcn1/groups/informationssystemsfacts/FAQframesPage.htm>. If FTP can not be used, deliveries of virus-free CDs containing project files by the Engineer are to include a completed MEDIA INFORMATION FORM (hardcopy sample attached).

Upon final approval and acceptance of the job, the Project Engineer will send all project files and one copy of the MEDIA INFORMATION FORM (if applicable) to Network Operations in Information Systems for archiving, indexing, and subsequent retrieval. Information and instructions regarding the archiving of design projects may be found internally at <http://houwwwcn1/groups/informationssystemsfacts/FAQframesPage.htm>. The information on archived design projects will be available for use by all STATE employees.

No media will be accepted by a STATE Project Engineer without a properly prepared MEDIA INFORMATION FORM.

It is the additional responsibility of the Project Engineer to assure all files received from an Engineer meet STATE standards whether via FTP or on CD. To enable a workable procedure that will benefit all computer users, information on files delivered by CD must also be included as follows:

1. Use the MEDIA INFORMATION FORM to document any existing Engineer prepared, original, computer media in your possession.
2. Review the prepared forms and determine that adequate indexing information is available. Based solely on the information contained on the form, one should be able to determine the media contents.
  - A. If existing media documentation is adequate, forward the media and the completed requisite form to Network Operations.
  - B. If existing media documentation is inadequate, review the contents of the media locally and complete the documentation prior to submitting to Network operations.



**SPECIAL PROVISIONS**  
**STANDARDS AND REQUIREMENTS**

**PURPOSE:**

The purpose of the following Special Provisions is to identify and define STATE's Information Systems requirements and approved procedures to facilitate their use. Recognizing that STATE has a significant investment in hardware, software, and training of personnel engaged in automated plan preparation, precautions are required to assure that the products of this contract are compatible with that investment. It is STATE's intention that: The Engineer shall provide virus-free files and plots generated from those files. The virus-free files provided, using STATE's hardware and software, must display as plotted and subsequently plot as displayed without conversion, translation, or additional manipulation. In as much as the goal of this contract is to obtain the Engineer's original engineering products, no conversion or translation expenses incurred by the Engineer shall be charged to, or be paid by, STATE.

**GENERAL REQUIREMENTS:**

Due to the variety of hardware and software available in each section and area office, and to assure the compatibility of files received and data exchanged, the Project Engineer will indicate all approved media(s) and data format(s) on the included APPROVED PRODUCTS LIST. The Consultant/Contractor shall provide, using exclusively the products selected from the APPROVED PRODUCTS LIST, virus-free files and data conforming to the column spacing and format conventions required by STATE programs unless alternately directed by the Project Engineer (see attached Column and Spacing Formats section of these Special Provisions). The Engineer shall scan the media for viruses prior to uploading via FTP or delivering any files to STATE.

It is the Engineer's responsibility to solicit any additional information that may be required to assure that all media, files and data formats are 100 percent compatible with STATE's information resources.

**MICROSTATION GRAPHICS FILES:**

The Engineer shall be furnished, on the Department's choice of media listed on the attached APPROVED PRODUCTS LIST, the following information:

1. STATE's File Examples
2. STATE's Plot File Examples
3. CAD File Naming Convention Guideline for the Houston District

MicroStation .DGN file characteristics will be consistent with STATE standards including, but not limited to, level use, font designations, line weight and color criteria. These characteristics are not to be altered or revised in any manner without authorization by the District Information Resources Administrator. Should a compatibility problem arise, it is the responsibility of the Engineer to bring the problem to the attention of the STATE Project Manager who will work with Information Systems personnel and negotiate an appropriate solution.

It is the intent of STATE, and this contract, to secure MicroStation .DGN files which have elements of the same integrity, singularity, and attributes as elements generated by STATE's CADD system, Bentley's MicroStation, as well as, file utilization consistent with STATE standards. (See this project's Scope of Services for specific version information.)

### **Project Design File Criteria**

File Descriptions And Terminology: Level use, element location, style, and symbology requirements follow:

**Planimetric File:** Generally a product of stereo digitized aerial photography. The planimetric contains existing topographic and geographic features within the limits of the projected contract. The Planimetric serves as a foundation for referencing and the development of the proposed. Without the Project Engineers written agreement, this file shall not be modified.

**Master Design File, or Schematic Layout:** Graphical description of proposed improvements containing graphic elements representing engineering alignments and proposed features. Categories which can simultaneously reference identical coordinates of the planimetric include Right Of Way Maps, Roadway Design, Bridge Design, Traffic Signing, Signals, Striping and Control Plans, and Project Limits Profiles.

### **SHEET FILE:**

Standard sheet format should be appropriate to the category of the Design File it references. The referenced Design File is to be displayed within a single sheet file and will be terminated by clip referencing to matchlines contained in the Design File. The sheet file will contain all annotation appropriate to the Design File application or category being referenced. Typical examples are text, dimensioning, ramp labeling, patterning, hatching, profile data, etc.

### **File Requirements**

**The virus-free media delivered by the Engineer shall include documentation of the following:**

1. A Media Directory Listing shall be supplied for this information.
2. The symbology, weight, style and color standards for design elements. (See DGNLIB @ [www.dot.state.tx.us/isd/geopak/STATEcadd.htm](http://www.dot.state.tx.us/isd/geopak/STATEcadd.htm))

3. Level menu showing level use consistent with STATE standards. (See DGNLIB @ [www.dot.state.tx.us/isd/geopak/STATEcadd.htm](http://www.dot.state.tx.us/isd/geopak/STATEcadd.htm))
4. Font characteristics and pen tables consistent with STATE standards. (Standards Attached)
5. Completed Engineer media index showing name and contact information for computer systems utilized by the Engineer. (Form Attached)
6. CAD File Naming Convention Guidelines for the Houston District. (Standards available internally at Link: <http://houtxdocs/houtxdocs/links.asp?id=HOUSTON004622631>)

**MINIMUM MICROSTATION GRAPHIC FILE REQUIREMENTS:**

As a minimum requirement, the MicroStation .DGN graphic files shall be comprised of elements defined with the following graphic entities and attributes.

**Required graphic entities:**

Line	-	2 connected points that form a single entity
Line Strings	-	a series of connected points that form a single entity
Polygon	-	a series of connected points that form a closed entity
Circle	-	the geometric definition of a circle (not a line string)
Arc	-	a segment of a circle (not a linestring or polygon)
Symbol	-	a group of graphic entities that form a single entity
Cell	-	a named, retrievable symbol

**Required entity attributes:**

Level	-	a drawing layer that can be selectively turned on or off
Line Weight	-	a line weight (width)
Line Style	-	a line symbology (dashed, dot-dash, etc.)
Color	-	a color code

All plots and graphics media provided as a result of this contract shall become the property of STATE.

**APPROVED PRODUCTS LIST**  
(STATE: Check the appropriate media.)

Microcomputer and High-End Workstation Media Types	Data Format
<input type="checkbox"/> CD-ROM	<input type="checkbox"/> Intel
<input type="checkbox"/> DVD-ROM	<input type="checkbox"/> Intel
<input type="checkbox"/> USB Memory Stick	<input type="checkbox"/> Intel

**POSSIBLE SOFTWARE**  
(STATE: Check the appropriate software.)  
(Enter version number in space provided.)

Word Processors	Spreadsheet Programs
Microsoft Word v. _____	Microsoft Excel v. _____
Database Programs	Operating System
Microsoft Access v. _____	Microsoft XP v. _____
CADD Software	
Bentley MicroStation v. _____	
Bentley GeoPak v. _____	

**Project Engineer's Printed Name:** \_\_\_\_\_

**Project Engineer's Signature:** \_\_\_\_\_

**TEXAS DEPARTMENT OF TRANSPORTATION**  
**MEDIA INFORMATION FORM**

FIRM NAME \_\_\_\_\_

FIRM CONTACT \_\_\_\_\_ PHONE NO. \_\_\_\_\_

STATE CONTACT \_\_\_\_\_

MEDIA OPERATING SYSTEMS \_\_\_\_\_

MEDIA FORMAT \_\_\_\_\_

LIMITS \_\_\_\_\_

ACCOUNT/CONTRACT NO. \_\_\_\_\_

CSJ NO. \_\_\_\_\_ HIGHWAY NO. \_\_\_\_\_

THE FILES HAVE BEEN SCANNED  
FOR VIRUSES AND ARE VIRUS FREE: \_\_\_\_\_  
(NAME)

(EXAMPLE FOR THE MEDIA LABEL: THE FILES LISTED ON THIS FORM  
THAT ARE ON 2 OR MORE MEDIA MUST BE LABELED WITH THE CSJ NO.  
0999-99-9999 AND NUMBERING SYSTEM OF 1 OF 2, 2 OF 2.)

MEDIA LABEL \_\_\_\_\_ OF \_\_\_\_\_

---

TO BE COMPLETED BY HOUSTON DISTRICT INFORMATION SYSTEMS PERSONNEL

INDEX NUMBER: \_\_\_\_\_ DATE RECEIVED: \_\_\_\_\_

RECEIVED BY: \_\_\_\_\_

DELIVERED BY: \_\_\_\_\_

VERIFIED VIRUS FREE: \_\_\_\_\_ DATE: \_\_\_\_\_

SPECIAL INSTRUCTIONS: \_\_\_\_\_

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Legacy Contract No. 12-5SDP5127  
PeopleSoft Contract No. 5033

## DRAWING INDEX

CSJ NO. \_\_\_\_\_ HIGHWAY NO. \_\_\_\_\_

MEDIA LABEL \_\_\_\_\_ OF \_\_\_\_\_ ACCOUNT/CONTRACT NO. \_\_\_\_\_

[illegible]

**LEVEL STRUCTURE**

CSJ NO.	DRAWING TITLE	HIGHWAY
	<b>ROADWAY PLAN AND PROFILE</b>	

DESIGN FILE NAME	STATION LIMITS	SHEET NO
<b>RPP09.DGN</b>	<b>1046+00 TO 1057+00</b>	<b>107</b>

RF	REFERENCE FILE NAME	REFERENCE DESCRIPTION
1	<i>ALIGN.DGN</i>	<i>HORIZONTAL ALIGNMENT FILE</i>
2	<i>BGEOM.DGN</i>	<i>BRIDGE GEOMETRY FILE</i>
3	<i>DTOP0.DGN</i>	<i>DESIGN TOPOGRAPHY</i>
4	<i>RGEOM.DGN</i>	<i>ROADWAY GEOMETRY FILE</i>
5	<i>PPSHT01.DGN</i>	<i>REF BORDER FOR ROAD PLAN AND PROFILE SHTS.</i>
6	<i>RDWYPRO.DGN</i>	<i>BELTWAY 8 PROFILE</i>
<i>CELL LIBRARY:</i>		<i>BGE.CEL</i>
<i>PLOT CONFIG:</i>		<i>BGE.PLT</i>

**PLOTTING INFORMATION**

CSJ NO. \_\_\_\_\_

HIGHWAY NO. \_\_\_\_\_

MEDIA LABEL \_\_\_\_\_ OF \_\_\_\_\_

ENGINEER NO. \_\_\_\_\_

**PLOTTING INSTRUCTIONS:**

COLOR TABLES

PEN TABLES

CELL LIBRARIES

PLAN SHEETS (DGN.FILES)

PARCEL SKETCHES (DGN FILES WITH DIFFERENT DESC)

**EXAMPLE DOCUMENTATION**

**AVAILABLE AT YOUR REQUEST**

- Cell Library
- Plotting Pen Tables
- Menus
- Seed Files



**ENGINEER STANDARDS MEDIA DOCUMENTATION**

This Media contains standard MicroStation cell libraries, plotting pen tables, menus, and seed files used by the Houston District of the Texas Department of Transportation and is provided to Engineer Contracting Projects.

**DRAFTING STANDARDS AND GRAPHIC SEED FILES:**

<http://www.dot.state.tx.us/isd/geopak/STATEcadd.htm>

**CELL LIBRARIES:**

<u>FILE NAME</u>	<u>DESCRIPTION</u>
e_sheet.cel	Standard Sheets for English Projects Cell Library
advplan.cel	Advanced Planning Cell Library
gdb1000.cel	Houston District Standard Cell Library
schplan.cel	Schematic Planning cell Library
sign.cel	Sign Cell Library

**WORKSTATION COLOR TABLES:**

<u>FILE NAME</u>	<u>DESCRIPTION</u>
32color.ctb	16 Colors Color Table
v256color.ctb	256 Colors Color Table (Houston District Standard)
schplot.ctb	Advance Planning Color Table

**FONT LIBRARY:**

<u>FILE NAME</u>	<u>DESCRIPTION</u>
STATE.rsc	Standard Font Library

**GRAPHIC SAMPLE FILES:**

<u>FILE NAME</u>	<u>DESCRIPTION</u>
192gt01.dgn	Sample Houston District Title Sheet
192pp06.dgn	Major Freeway Section (portion of State Highway 6)
192pp01.dgn	Non-freeway Section (portion of State Highway 6)
dist12.dgn	Reference file for 192gt01.dgn
d12ant.dgn	Reference file for 192gt01.dgn
192r2d01.dgn	Reference file for 192gt01.dgn, 192pp06.dgn, and 192pp01.dgn
192ral01.dgn	Reference file for 102gt01.dgn, ,192pp06.dgn and 192pp01.dgn
192rg01.dgn	Reference file for 192gt01.dgn, and 192pp01.dgn

**Planimetric / DTM**

**File Level Menu**

Photogrammetry Feature	DTM	Microstation V8 Name	Level
<b>Control</b>			
Horizontal Control, Principal Point	no	p_control ground ctrl	1
<b>Road</b>			
Paved Road , Curb	yes	p_road paved, curb	2
Dirt Road	yes	p_road dirt	3
Guard Rails	no	p_road guard rail	4
Guard Fences	no	p_road guard fence	5
Guard Posts	no	p_road guard post	7
Concrete Barrier	no	p_road conc barrier	6
Paint Stripe Solid and Dashed	yes	p_road paint stripe	62
Bridge End	yes	p_road bridge end	9
Cattle Guard	no	p_road cattle guard	16
Overhead Sign	no	p_road overhead sign	7
General Road Feature	no	p_road general feature	7
<b>Railroad</b>			
Railroad Track RR Controls	no	p_railroad rr control	10
<b>Drainage</b>			
Concrete Dam	yes	p_drainage conc dam	27
Concrete Drain	yes	p_drainage conc drain	28
Earthen Dam	yes	p_drainage earthen dam	26
Riprap	yes	p_drainage riprap	8
Culvert	yes	p_drainage culvert	9
Inlet	yes	p_drainage inlet	9
Water	yes	p_drainage water	25
Marsh	yes	p_drainage marsh	24
<b>Structure</b>			
Building	no	p_structure building	11
Ruin	no	p_structure ruins	12
Sidewalk	no	p_structure sidewalk	13
Slab	no	p_structure slab	14
Porch, Deck	no	p_structure porch	15
Stairs, Steps	no	p_structure stairs	16
Fence, Gate, Post	no	p_structure fence	17
Retaining Wall	no	p_structure ret wall	18
Wall	no	p_structure wall	18
Cemetery	no	p_structure cemetery	23
Billboard	no	p_structure billboard	21
Sign, Sign Pole, Sign Post	no	p_structure sign	21
Antenna, Cellular Tower, Satellite Dish	no	p_structure antenna	20
Windmill	no	p_structure windmill	23

Flag Pole	no	p_structure flag pole	20
Pipes	no	p_structure pipe	23
Tank	no	p_structure tank	23
Area Under Construction	no	p_structure constr area	12
General, AC Unit, Goal Large, Small Circle	no	p_structure general	23
Unidentified Feature	no	p_structure unidentified	23
<b>Utility</b>			
Fire Hydrant	no	p_utility fire hydrant	20
Manhole	no	p_utility manhole	20
Marker, Meter, Valve	no	p_utility marker	20
Transmission Tower, transmission Line	no	p_utility trans tower	20
Pipeline	no	p_utility pipeline	22
General, Pole, Pole LP, TFP, LP			
Traffic Light, Gas Light	no	p_utility general pole	20
<b>Vegetation</b>			
Woods	no	p_veg woods	29
Tree	no	p_veg tree	29
Tree Farm	no	p_veg tree farm	30
Tree Orchard	no	p_veg tree orchard	29
Palm	no	p_veg palm	29
<b>Digital Terrain Model (DTM)</b>			
Breakline	yes	p_dtm breakline	40
General Breakline	yes	p_dtm general breakline	53
Retaining Wall Breakline	yes	p_dtm retaining wall	48
Sidewalk Breakline	yes	p_dtm sidewalk	43
Mass Points	yes	p_dtm mass points	38
Water Obscured	yes	p_dtm water obscured	45
Obscured Area	yes	p_dtm obscured area	41
Pit and Fill Area	yes	p_dtm pit or fill area	24
Stock Pile	yes	p_dtm stock pile	19

**ATTACHMENT H-SG**

**Historically Underutilized Business  
for State Funded Professional or Technical Services Contracts  
HUB Goal Assigned-State of Texas Subcontracting Plan Required**

- 1) **POLICY.** It is the policy of the Department to ensure that HUBs shall have an equal opportunity to participate in the performance of contracts; to create a level playing field on which HUBs can compete fairly for contracts and subcontracts; to ensure nondiscrimination on the basis of race, color, national origin, or gender in the award and administration of contracts; to help remove barriers to the participation of HUBs in department contracts; and, to assist in the development of firms that can compete successfully in the market place outside the HUB program. Consequently, the HUB requirements of the Department's HUB Program apply to this contract as follows:
  - (1) The Provider agrees to insure that they shall take all necessary and reasonable steps to meet the HUB goal for this contract.
    - a. The Provider and any subprovider(s) shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of contracts.
    - b. When submitting the contract for execution by the Department, the Provider must complete and furnish Exhibit H-1 which lists the commitments made to all subproviders, including certified HUB subprovider(s) that are to meet the contract goal, and Exhibit H-2 which is a commitment agreement(s) containing the original signatures of the Provider and HUB(s) that were indicated in the original submitted State of Texas HUB Subcontracting Plan (HSP) in Section 8. For Work Authorization Contracts, Exhibit H-1 is required at the time of submitting the contract for execution by the Department. Exhibit H-2 will be required to be completed and attach with each work authorization number that is submitted for execution, if the HUB will be performing work. If non-HUB subprovider is performing work, insert N/A (not applicable) on the line provided. A prime must allow a HUB maximum opportunity to perform the work by not creating unnecessary barriers or artificial requirements for the purpose of hindering a HUB's performance under the contract. Any substitutions or changes to the HSP, in addition to any changes to the original contract award, shall be subject to prior written approval by the Department. If there are any changes to the subproviders during the contract term, the Provider must furnish a Revised Exhibit H-1 showing the revised commitment of all subproviders.
    - c. Failure to carry out the requirements set forth above shall constitute a breach of contract and may result in a letter of reprimand; in termination of the contract by the Department; in a deduction from money due or to become due to the Provider, not as a penalty but as damages to the Department's HUB Program; or such other remedy or remedies as the Department deems appropriate.
- 2) **DEFINITIONS.**
  - a. "Department" means the Texas Department of Transportation (TxDOT).
  - b. "Contract" is the agreement between the Texas Department of Transportation and a Provider.
  - c. "Provider" is any individual or company that provides professional or technical services.
  - d. "Joint Venture" means an association of two or more businesses to carry out a single business enterprise for profit which combines their property, capital, efforts, skills and knowledge.
  - e. "Historically Underutilized Business (HUB)" means any business so certified by the Texas Facilities Commission.
- 3) **PERCENTAGE GOAL.** The goal for Historically Underutilized Business (HUB) participation in the work to be performed under this contract is \_\_\_\_\_% of the contract amount.
- 4) **PROVIDER'S RESPONSIBILITIES.** A Provider (HUB or non-HUB) must perform a minimum of 30% of the contract with its employees (as defined by the Internal Revenue Service). The contract is subject to the HSP Good Faith Effort Requirements.

- a. A Provider who cannot meet the contract goal, in whole or in part, should have documented any of the following and other efforts made as a "Good Faith Effort" to obtain HUB participation.
  - (1) Whether the prime advertised in general circulation, trade association, and/or minority/women focus media concerning subcontracting opportunities.
  - (2) Whether the prime provided written notice to at least three (3) qualified HUBs allowing sufficient time for HUBs to participate effectively.
  - (3) Whether the prime documented reasons for rejection or met with the rejected HUB to discuss the rejection.
  - (4) Whether the prime provided qualified HUBs with adequate information about bonding, insurance, the plans, the specifications, scope of work and requirements of the contract.
  - (5) Whether the prime negotiated in good faith with qualified HUBs, not rejecting qualified HUBs who are also the lowest responsive bidder.
  - (6) Whether the prime used the services of available minority and women community organizations, contractor's groups, local, state, and federal business assistance offices, and other organizations that provide support services to HUBs.

NOTE: The Provider must not cause or allow subproviders to bid their services.

- b. The preceding information shall be submitted directly to the Chair of the Consultant Selection Team responsible for the contract.
- c. The Provider shall make all reasonable efforts to honor commitments to HUB subproviders named in the original HSP in Section 8. Where the Provider terminates or removes a HUB subprovider named in the initial commitment, the Provider must demonstrate on a case-by-case basis to the satisfaction of the Department that the originally designated HUB was not able or willing to perform. The term "unable" includes, but is not limited to, a firm that does not have the resources and expertise to finish the work and/or a firm that substantially increases the time to complete the project.
- d. The Provider shall make all reasonable efforts to replace a HUB subprovider that is unable or unwilling to perform successfully with another HUB and must meet the HSP Good Faith Effort Requirements. Any substitution of HUBs shall be subject to prior written approval by the Department. The Department will request a statement from the firm being replaced concerning its replacement prior to approving the substitution. If there are any changes to the subproviders during the contract term, the Provider must furnish a Revised Exhibit H-1 showing the revised commitment of all subproviders.
- e. The Provider shall designate a HUB liaison officer who will administer the Provider's HUB program and who will be responsible for maintenance of records of efforts and contacts made to subcontract with HUBs.

5) **ELIGIBILITY OF HUBs.**

- a. The Texas Facilities Commission (TFC) certifies the eligibility of HUBs.
- b. The TFC maintains a directory of certified HUBs. The HUB Directory is available through the Department's Business Opportunity Programs Office and through the Internet at the TFC's Website (<http://www.tfc.state.tx.us/divisions/commissionadmin/prog/HUB>).
- c. Only HUB firms certified and identified in specific categories and classes at the time the contract is signed or at the time the commitments are submitted are eligible to be used in the information furnished by the Provider as required under Section 2.c. above.
- d. If during the course of the contract it becomes necessary to substitute another HUB firm for a firm named in the information submitted by the Provider as required by Section 2.c. above, then only certified HUBs will be considered eligible as a substituted firm. The Provider's written request for substitutions of HUB subproviders shall be accompanied by a detailed explanation, which should substantiate the need for a substitution. The Department will verify the explanation with the HUB firm being replaced before giving approval of the substitution. If there are any changes to the subproviders during the contract term, the Provider must furnish a Revised Exhibit H-1 showing the revised commitment of all subproviders.
- e. The 73rd Legislature passed Texas Civil Statutes, Article 601i, relative to contracts between governmental entities and certain disadvantaged businesses. The Statute provides for civil

penalties for persons who falsely claim disadvantaged business status and for the general contractor who knowingly contracts with a person claiming to be a disadvantaged business.

6) **DETERMINATION OF HUB PARTICIPATION.**

A firm must be an eligible HUB and perform a professional or technical function relating to the project. Proof of payment, such as copies of canceled checks, properly identifying the Department's contract number or project number may be required to substantiate the payment, as deemed necessary by the Department. A HUB subprovider, with prior written approval from the Department, may subcontract 70% of a contract as long as the HUB subprovider performs a commercially useful function. All subcontracts shall include the provisions required in the subcontract and shall be approved as to form, in writing, by the Department prior to work being performed under the subcontract. A HUB performs a commercially useful function when it is responsible for a distinct element of the work of a contract; and actually manages, supervises, and controls the materials, equipment, employees, and all other business obligations attendant to the satisfactory completion of contracted work. If the subcontractor uses an employee leasing firm for the purpose of providing salary and benefit administration, the employees must in all other respects be supervised and perform on the job as if they were employees of the subcontractor.

7) **COMPLIANCE OF PROVIDER.**

- 8) To ensure that HUB requirements of this contract are complied with, the Department will monitor the Provider's efforts to involve HUBs during the performance of this contract. This will be accomplished by a review of the monthly State of Texas HUB Subcontracting Plan Prime Contractor Progress Assessment Report (Exhibit H-6) submitted to the Business Opportunity Programs Office by the Provider indicating his/her progress in achieving the HUB contract goal, and by compliance reviews conducted by the Department. The State of Texas HUB Subcontracting Plan Prime Contractor Progress Assessment Report (Exhibit H-6) must be submitted at a minimum monthly to the Business Opportunity Programs Office, in addition to with each invoice to the appropriate agency contact.

The Provider shall receive credit toward the HUB goal based on actual payments to the HUB subproviders with the following exceptions and only if the arrangement is consistent with standard industry practice.

- (1) Payments to brokers or firms with a brokering type operation will be credited only for the amount of the commission;
- (2) Payments to a joint venture will not be credited unless all partners in the joint venture are HUBs;
- (3) Payments to a HUB subprovider who has subcontracted a portion of the work required under the subcontract will not be credited unless the HUB performs a commercially useful function;
- (4) Payments to a HUB will not be credited if the firm does not provide the goods or perform the services paid for;
- (5) Payments made to a HUB that cannot be linked by an invoice or canceled check to the contract under which credit is claimed will not be credited.

A Provider must not withhold or reduce payments to any HUB without a reason that is accepted as standard industry practice. A HUB prime or subprovider must comply with the terms of the contract or subcontract. Work products, services, and commodities must meet contract specifications whether performed by a prime or subprovider.

A Provider's failure to meet the HUB goal and failure to demonstrate to the Department's satisfaction sufficient "Good Faith Effort" on his/her part to obtain HUB participation shall constitute a breach of contract. In such a case, the Department reserves the right to issue a letter of reprimand; to deduct the amount of HUB goal not accomplished by HUBs from the money due or to become due the Provider, not as a penalty but as damages to the Department's HUB program; or such other remedy or remedies as the Department deems appropriate.

9) **RECORDS AND REPORTS.**

- a. After submission of the initial commitment (Exhibit H-1), required by Section 2.c. of this attachment, the Provider shall submit State of Texas HUB Subcontracting Plan Prime Contractor Progress

Assessment Report (Exhibit H-6) at a minimum monthly, after contract work begins, on subcontracting involvement. One copy of the State of Texas HUB Subcontracting Plan Prime Contractor Progress Assessment Report (Exhibit H-6) is to be sent to the Business Opportunity Programs Office of the Department monthly. In addition, the State of Texas HUB Subcontracting Plan Prime Contractor Progress Assessment Report (Exhibit H-6) must be submitted with the Provider's invoice. All payments made to subproviders are to be reported. **These State of Texas HUB Subcontracting Plan Prime Contractor Progress Assessment Reports are required monthly even during months when no payments to subproviders have been made.** The State of Texas HUB Subcontracting Plan Prime Contractor Progress Assessment Report will be required until all work on the contract has been completed. The Department may verify the amounts being reported as paid to HUBs by requesting copies of canceled checks paid to HUBs on a random basis.

- b. Subproviders should be identified on the State of Texas HUB Subcontracting Plan Prime Contractor Progress Assessment Report (Exhibit H-6) by name, the amount of actual payment made to each during the billing period, cumulative payment amount and percentage of the total contract amount.
- c. All such records must be retained for a period of seven years following final payment, or until an investigation, audit, examination, or other review undertaken during the seven years, and shall be available at reasonable times and places for inspection by authorized representatives of the Department and other agencies.
- d. Prior to receiving final payment, the Provider shall submit a Final Report (Exhibit H-4), detailing the subprovider payments to the Business Opportunity Programs Office of the Department, and one copy to the Department with the Provider's final invoice.

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## **ATTACHMENT H-SN**

### **Historically Underutilized Business (HUB) for State Funded Professional or Technical Services Contracts No State of Texas HUB Subcontracting Plan Required**

#### **POLICY**

It is the policy of the Department to ensure that HUBs shall have an equal opportunity to participate in the performance of contracts; to create a level playing field on which HUBs can compete fairly for contracts and subcontracts; to ensure nondiscrimination on the basis of race, color, national origin, or gender in the award and administration of contracts; to help remove barriers to the participation of HUBs in department contracts; and, to assist in the development of firms that can compete successfully in the market place outside the HUB program.

Subcontracting participation on projects with no HUB Subcontracting Plan Required should be reported on the State of Texas HUB Subcontracting Plan Prime Contractor Progress Assessment Report, the Exhibit H-6 Form. Payment to non-HUBs subproviders must be reported on Exhibit H-6. Payments to HUBs reported on Exhibit H-6 are subject to the following requirements:

#### **DETERMINATION OF HUB PARTICIPATION.**

A firm must be an eligible HUB and perform a professional or technical function relating to the project. Once a firm is determined to be an eligible HUB, the total amount paid to the HUB should be reported as race-neutral HUB participation.

A HUB subprovider may subcontract no more than 70% of a contract. The HUB subprovider shall perform not less than 30% of the value of the contract work with assistance of employees employed and paid directly by the HUB; and equipment owned or rented directly by the HUB.

A provider must report a portion of the total value of the contract amount paid to a HUB joint venture equal to the distinct, clearly defined portion of the work of the contract performed by the HUB.

Proof of payment, such as copies of canceled checks, properly identifying the Department's contract number or project number may be required to substantiate the payment, as deemed necessary by the Department.

The provider and any subprovider shall not discriminate on the basis of race, color, national origin or sex in the award and performance of contracts. These requirements shall be physically included in any subcontract.

#### **REQUIRED FORMS.**

If subcontractors are used under the contract that has no stated HUB goal, Exhibits H-1, H-2, H-4 and H-6 are required. Exhibits H-1 and H-6 are required if no subcontractors are being used to perform work under this contract.

State of Texas HUB Subcontracting Plan Prime Contractor Progress Assessment Report (Exhibit H-6) is **required monthly even when no subcontracting activity has occurred.** In addition, State of Texas HUB Subcontracting Plan Prime Contractor Progress Assessment Report (Exhibit H-6) should be submitted with the Provider's invoice.

## EXHIBIT H-1

### Texas Department of Transportation Subprovider Monitoring System Commitment Worksheet

Contract #: 125SDP5127 Assigned Goal: 23.7 % Federally Funded  
No State Funded Yes

Prime Provider: Brown & Gay Engineers, Inc. Total Contract Amount: \$2,539,225.25

Prime Provider Info: DBE    HUB    Both   

Vendor ID #: 17418179515 DBE/HUB Expiration Date: N/A

(First 11 Digits Only)

*If no subproviders are used on this contract, please indicate by placing "N/A" on the 1<sup>st</sup> line under Subproviders.*

Subprovider(s) (List All)	Type of Work	Vendor ID # (First 11 Digits Only)	D=DBE H=HUB	Expiration Date	\$ Amount or % of Work *
I. S. Engineers, L.L.C.	3.5.1, 4.1.1, 8.1.1	None	N/A	09/21/2016	\$80,365.31
HVJ Associates, Inc.	14.1.1, 14.2.1, 14.3.1	17601464104	H	07/17/2017	92,585.95
Landtech Consultants, Inc.	4.1.1, 4.2.1, 8.1.1, 15.1.1, 15.1.2, 15.1.3, 15.1.4, 15.2.1, 15.4.1	17604210165	H	06/26/2016	\$509,278.73
AECOM Technical Services, Inc.	10.1.1, 10.2.1, 10.3.1	None	N/A	04/01/2016	\$284,040.33
Subprovider(s) Contract or % of Work* Totals					\$966,270.32

\*For Work Authorization Contracts, indicate the % of work to be performed by each subprovider.

Total DBE or HUB Commitment Dollars \$ 601,864.68

Total DBE or HUB Commitment Percentages of Contract 23.71%  
(Commitment Dollars and Percentages are for Subproviders only)

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**EXHIBIT H-2**  
**Texas Department of Transportation**  
**Subprovider Monitoring System Commitment Agreement**

This commitment agreement is subject to the award and receipt of a signed contract from the Texas Department of Transportation (TxDOT). **NOTE: Exhibit H-2 is required to be attached to each contract that does not include work authorizations. Exhibit H-2 is required to be attached with each work authorization. Exhibit H-2 is also required to be attached to each supplemental work authorization. If DBE/HUB Subproviders are used, the form must be completed and signed. If no DBE/HUB Subproviders are used, indicate with "N/A" on this line: \_\_\_\_\_ and attach with the work authorization or supplemental work authorization.**

Contract #: \_\_\_\_\_ Assigned Goal: \_\_\_\_\_% Prime Provider: \_\_\_\_\_

Work Authorization (WA)#: \_\_\_\_\_ WA Amount: \_\_\_\_\_ Date: \_\_\_\_\_

Supplemental Work Authorization (SWA) #: \_\_\_\_\_ to WA #: \_\_\_\_\_ SWA Amount: \_\_\_\_\_

Revised WA Amount: \_\_\_\_\_

Description of Work (List by category of work or task description. Attach additional pages, if necessary.)	Dollar Amount (For each category of work or task description shown.)
<b>Total Commitment Amount (Including all additional pages.)</b>	<b>\$</b> _____

**IMPORTANT:** The signatures of the prime and the DBE/HUB and Second Tier Subprovider, if any (both DBE and Non-DBE) and the total commitment amount must always be on the same page.

<b>Provider Name:</b> <b>Address:</b> <b>Phone # &amp; Fax #:</b> <b>Email:</b>	<b>Name:</b> _____ (Please Print) <b>Title:</b> _____ _____ <b>Signature</b> <b>Date</b>
<b>DBE/HUB Sub Provider</b> <b>Subprovider Name:</b> <b>VID Number:</b> <b>Address:</b> <b>Phone # &amp; Fax #:</b> <b>Email:</b>	<b>Name:</b> _____ (Please Print) <b>Title:</b> _____ _____ <b>Signature</b> <b>Date</b>
<b>Second Tier Sub Provider</b> <b>Subprovider Name:</b> <b>VID Number:</b> <b>Address:</b> <b>Phone # &amp; Fax #:</b> <b>Email:</b>	<b>Name:</b> _____ (Please Print) <b>Title:</b> _____ _____ <b>Signature</b> <b>Date</b>

VID Number is the Vendor Identification Number issued by the Comptroller. If a firm does not have a VID Number, please enter the owner's Social Security or their Federal Employee Identification Number (if Incorporated).

## EXHIBIT H-4

### Texas Department of Transportation Subprovider Monitoring System Final Report

The Final Report Form should be filled out by the Prime Provider and submitted to the Contract Manager and the Business Opportunity Programs Office for review upon completion of the contract. The report should reflect **all subcontract activity** on the project. The report will aid in expediting the final estimate for payment. If the HUB or DBE goal requirements were not met, documentation supporting good faith efforts must be submitted.

DBE Goal: \_\_\_\_%

OR

HUB Goal: \_\_\_\_%

Total Contract Amount: \$ \_\_\_\_\_

Total Contract Amount: \$ \_\_\_\_\_

Contract Number: \_\_\_\_\_

Vendor ID #	Subprovider	Total \$ Amt Paid to Date
TOTAL		

This is to certify that \_\_\_\_% of the work was completed by the HUB or DBE subproviders as stated above.

\_\_\_\_\_  
By: Prime Provider

\_\_\_\_\_  
Per: Signature

Subscribed and sworn to before me, this \_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_

\_\_\_\_\_  
Notary Public \_\_\_\_\_ County

My Commission expires: \_\_\_\_\_

***This form must be completed and submitted to the contracting agency each month to document compliance with your HSP.***

**Contracting Agency/University Name:**

Contractor (Company) Name: \_\_\_\_\_ State of Texas VID #: \_\_\_\_\_

Point of Contact: \_\_\_\_\_ Phone #: \_\_\_\_\_

Reporting (Month) Period: Total Amount Paid this Reporting Period to Contractor: \$ -

[illegible]

\*Note: HUB certification status can be verified on-line at: <http://www2.cpa.state.tx.us/cmbl/hubonly.html>

Rev. 10/07